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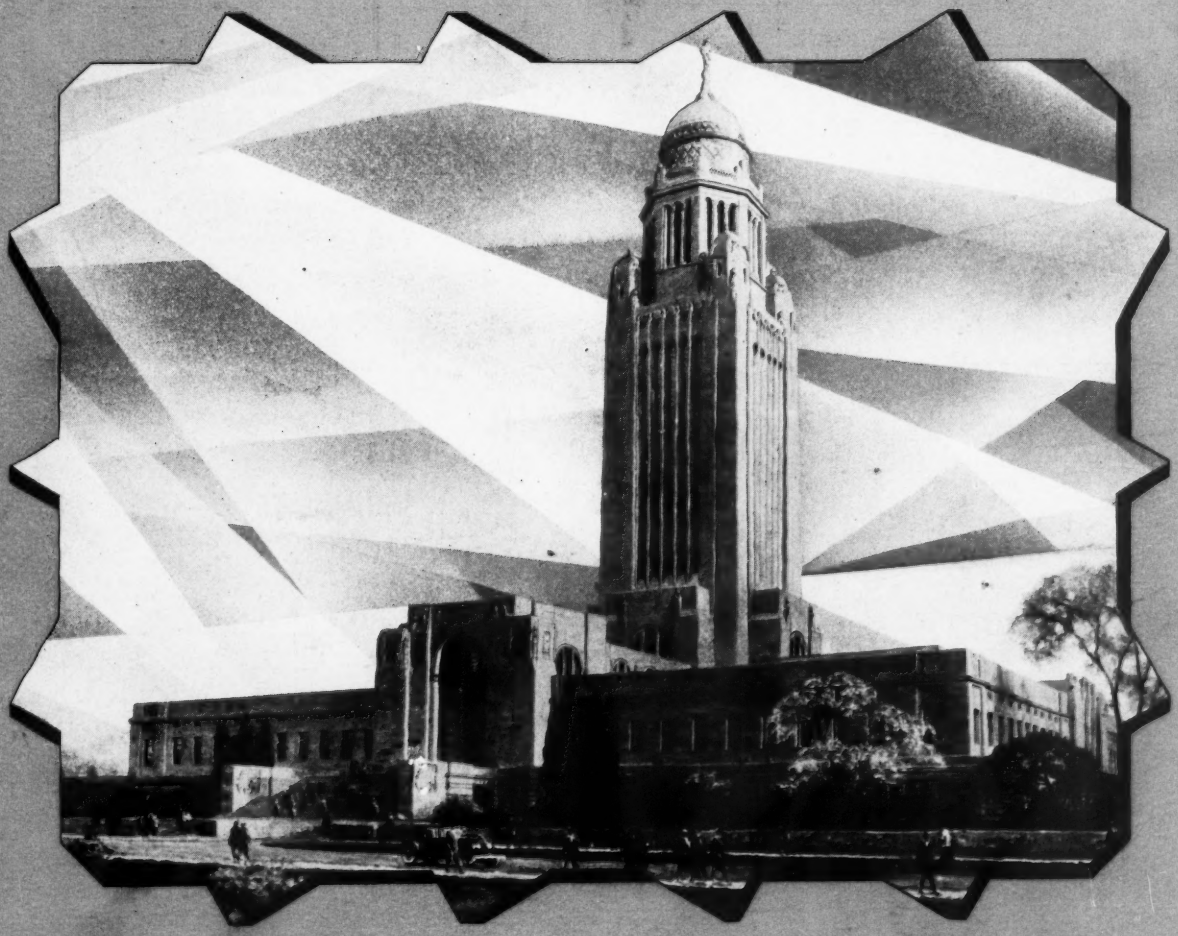
DOMESTIC ENGINEERING

The Plumbing and Heating Weekly

JULY 14, 1928



The Nebraska State Capitol, mentioned in R. M. Starbuck's article on

Isometric for Tall Buildings

KEWANEE STEEL BOILERS

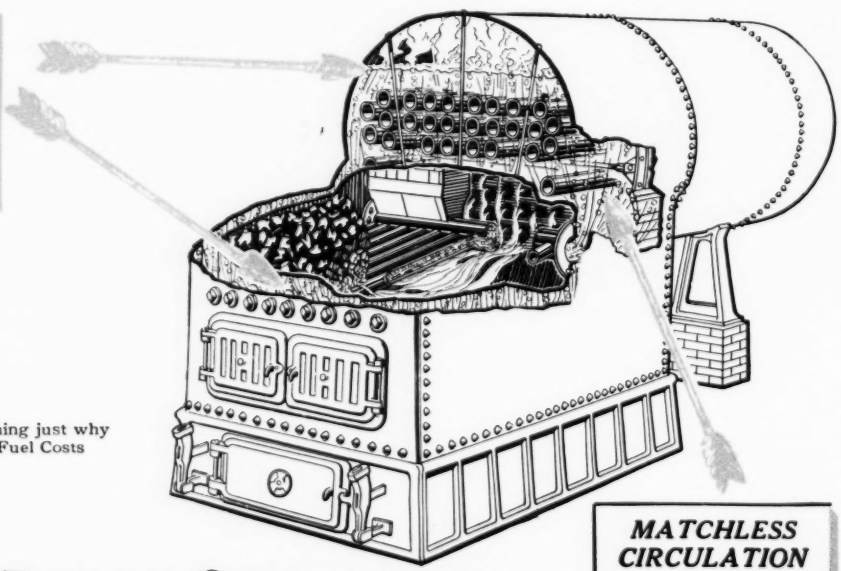
Lower Heating Costs

The right place for plenty of water is in the boiler and not in the steam lines and radiators. The Kewanee boiler style is not cramped, so the steam is delivered dry.

Kewanee provides ample volume of water in rapid circulation in the boiler, it is neither agitated into unmanageable commotion nor forced out into the steam lines by the liberated steam bubbles. It sticks to the job of absorbing heat from the heating surface. That is another reason why Kewanee is able to show *lower heating costs.*

WATER CONTENT

Water content is large enough to absorb all the heat of combustion without undue disturbance. So the water line keeps steady in the gauge glass.



MATCHLESS CIRCULATION

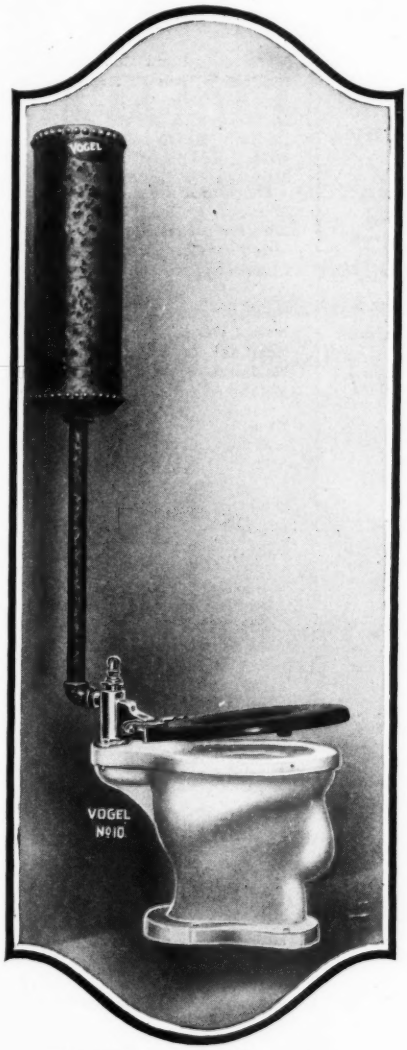
Matchless circulation is forced by the pumping action of the water grate and header built-in at the hottest fire zone.

Fifth of a Series—explaining just why Kewanee Boilers Cut Fuel Costs

KEWANEE BOILER CORPORATION

Kewanee, Illinois

Branches in 40 Principal Cities



VOGEL *Number Ten Closet*

Campaigning

Stump speeches are the vogue right now so you might as well do a little campaigning yourself. Only make **VOGEL** your platform and the **VOGEL** Number Ten Seat Action Closet—the **VOGEL** Frost Proof Closet and the **VOGEL** Frost Proof Hydrant your planks.

It you do you'll sure be elected to the office of Success, and Profit will be your wages.

Jovo—

Our Catalog in Sweet's

Jos. A. Vogel Co.

Wilmington, Del. **St. Louis, Mo.**

VOGEL PATENTED

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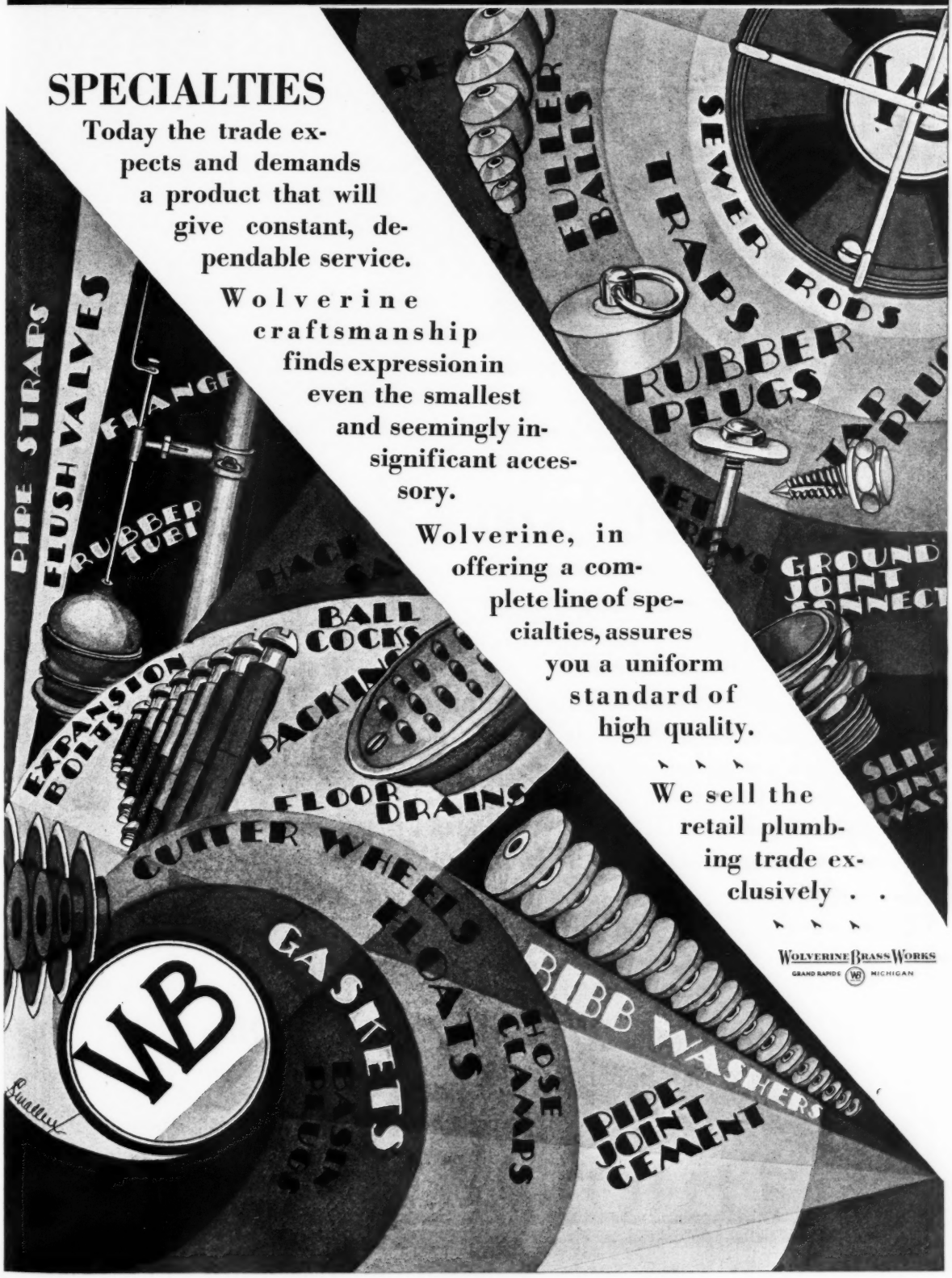
WOLVERINE



SPECIALTIES

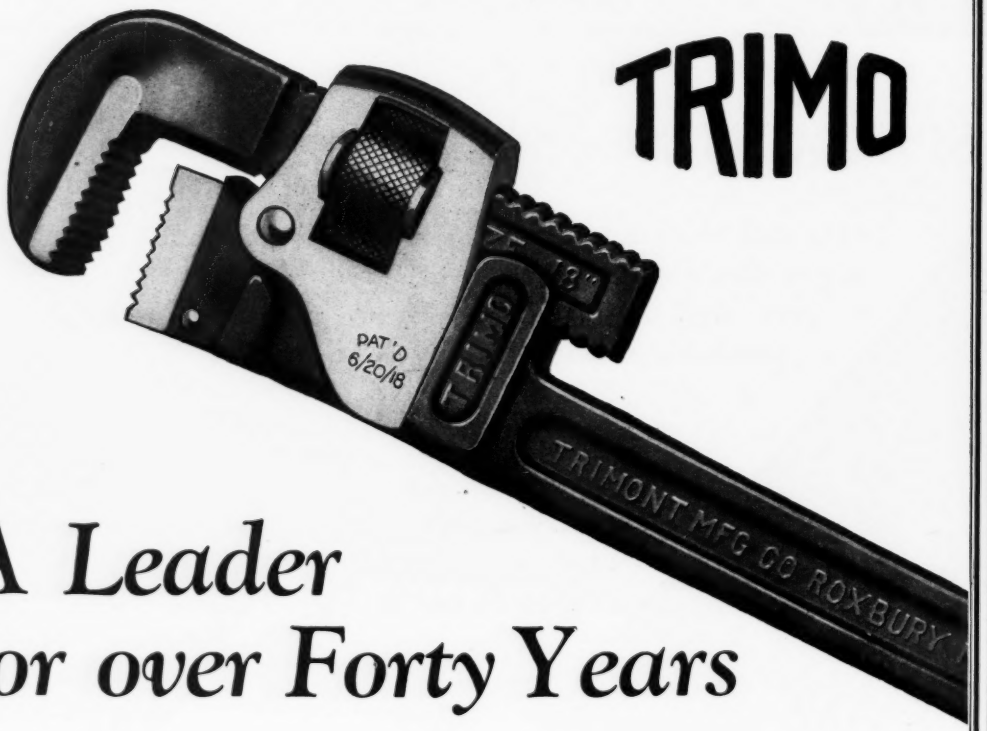
Today the trade expects and demands a product that will give constant, dependable service.

Wolverine craftsmanship finds expression in even the smallest and seemingly insignificant accessory.

Wolverine, in offering a complete line of specialties, assures you a uniform standard of high quality.

We sell the retail plumbing trade exclusively . .

WOLVERINE BRASS WORKS
GRAND RAPIDS (WB) MICHIGAN



A Leader for over Forty Years

Ever since 1888 the TRIMO Pipe Wrench has been a leader.

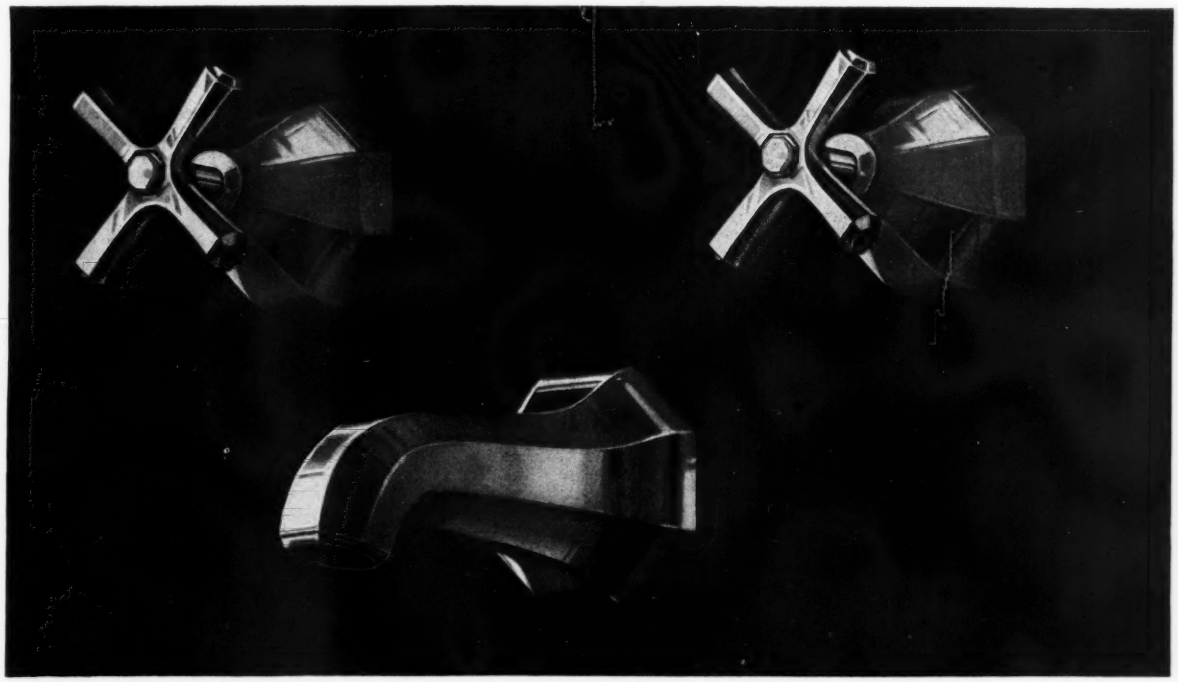
The TRIMO has never stood still but has been steadily improved for forty years in design, workmanship and material.

Stick to TRIMO—the all steel pipe wrench with replaceable insert jaws and handy nut-guards.

TRIMONT MFG. CO., INC.
Roxbury (Boston), Mass.

When You Want A Pipe Wrench, Buy A

TRIMO



"Octachrome"

new Kohler fittings in chromium plate

Here are Kohler fittings in a new and exclusive pattern, named *Octachrome* for the beauty of the octagonal design and the lustrous, enduring finish of chromium plate.

The beauty of these fittings is matched by their mechanical excellence. Bath and shower fittings are especially notable for their positive, quick-acting mixer control, large waterways, rapid drainage, and substantial construction throughout, with wearing parts easily renewable.

Kohler chromium plate, used on *Octachrome* fittings, has a lasting, platinum-like lustre. It will not tarnish; it resists fruit and vegetable acids, and it can be polished with ease. It is the ideal finish for use with Kohler Colorware.

There is a comprehensive line of Kohler *Octachrome* fittings. Complete combination bath and shower fittings are available in the new style, as well as fittings for lavatories and sinks.

Your business is bound to benefit if you let it be known that you furnish these new and finer accessories. Keep in line with *all* the new Kohler products through your jobber and by reading the *Kohler of Kohler News* every month. Write us if you are not getting this publication.

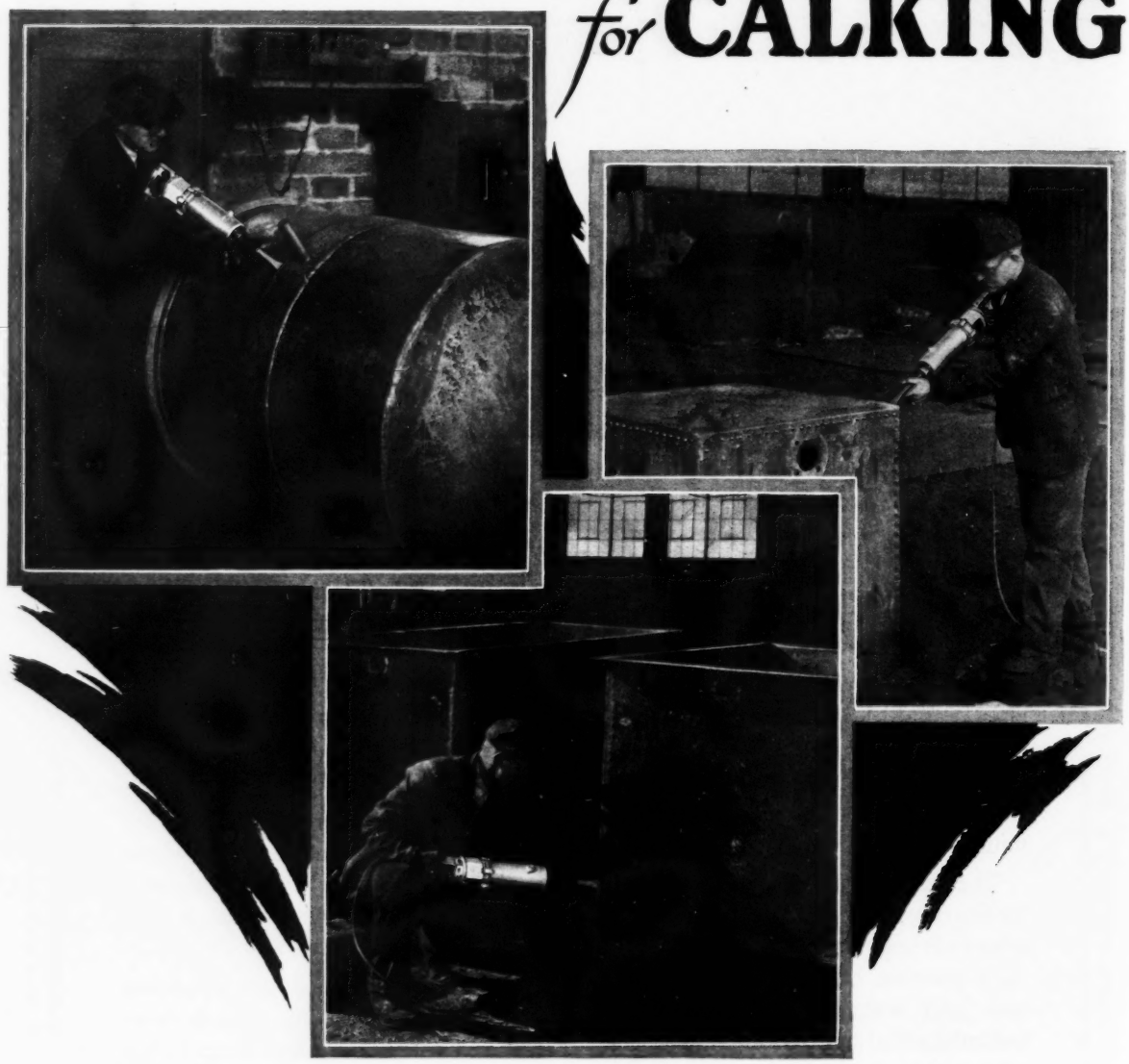
KOHLER CO., *Founded 1873*, KOHLER, WIS. · *Shipping Point*, Sheboygan, Wis. · *Branches in Principal Cities*

KOHLER OF KOHLER

Plumbing Fixtures

MEMBER PLUMBING & HEATING INDUSTRIES BUREAU U.S.A.

BLACK & DECKER ELECTRIC HAMMER *for* CALKING



The illustrations above show some calking operations on tanks, but this revolutionary tool can also be taken out on the job and used for calking pipes and seams of all kinds.

In addition to this particular class of work this Hammer has literally a thousand other uses, with various types of tools, such as bull points, diamond points, cold chisels, wood chisels, gouges etc.

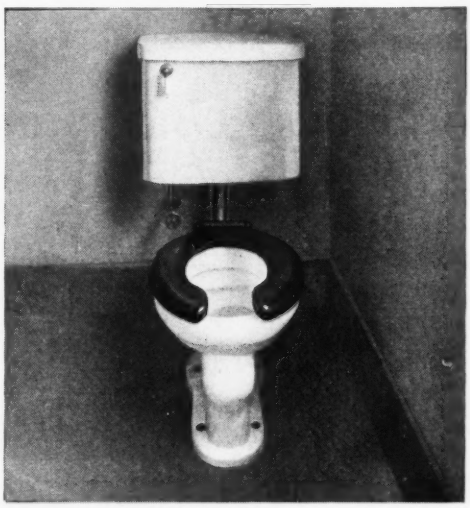
Write for illustrated bulletin containing detailed description and prices.

BLACK & DECKER

96 Church St., Toronto, Ontario TOWSON, MD., U. S. A. Slough, Bucks, England

This Guarantee *carries no time limit*

It is the most sweeping guarantee ever made for a toilet seat



A Church Sani-Black Seat installed in the Prendergast Preventorium, Mattapan, Mass.

WHEN equipment is chosen for a hotel, hospital, office building or any other public building, one question is always asked: "How long will it last?" Permanence, far more than any other factor, determines what equipment will be chosen.

If you handle Church Sani-Black Seats, you will have an extra talking point to help you close the contract. You can definitely assure your customer that these seats will be as good as new *as long as the building stands in which they are installed.* And our written guarantee will back you up in this promise!

These four features explain why we can make such a sweeping guarantee. Read them carefully. Then ask yourself if you know of any other toilet seat that could be guaranteed as strongly—that comes anywhere near being as durably, permanently constructed.

1. The core of the Sani-Black Seat is made of cross-grained layers of wood and rubber, vulcanized into a compact, indestructible unit.
2. Around the Sani-Black core is a hard, jet-black composition, vulcanized into one homogeneous unit under heat pressure. This outside covering has no joints. Its polished surface will never scratch, chip, crack or wear off.
3. Hinges on Sani-Black Seats never get loose. The screws that hold them are tapped through solid steel bars, which are molded *into* the seat core.
4. The hinges on All-Black Seats are made of a hard molded composition and match the seat perfectly for color. They cannot tarnish, rust or become corroded. They will always be smooth and sanitary.

Once installed, Church Sani-Black Seats will never have to be replaced! They will never cost anything to maintain! How could you find a better selling argument?

Owners, architects and building managers everywhere have selected the Church Sani-Black Seats in preference to all others—for installation in hotels, schools, office buildings and factories located in every section of the country. For public buildings of all kinds, you could not find a surer or quicker selling toilet seat to carry.

The coupon will bring you full information concerning this handsome, indestructible seat. Mail it *today* to C. F. Church Mfg. Co., Holyoke, Mass.

Church Seats
sani-black
"Toilet Seats for Better Bathrooms"
Also manufacturers of Church Sani-White Seats
Established 1898

C. F. Church Manufacturing Co.
Dept. 2-7, Holyoke, Mass.

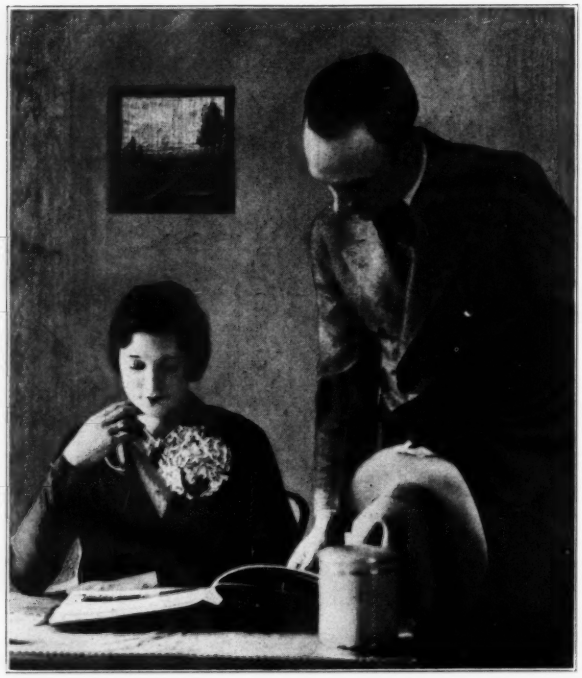
Gentlemen:
Kindly send me your complete selling plan for Church Sani-White and Sani-Black Seats.

Name_____

Address_____

City_____

State_____



If the Woman of the House Understood the Importance of Brass Goods

If the woman of the house understood the importance of plumbing brass goods—if she knew how much of her own comfort and convenience depended upon that bathroom fixture or that kitchen faucet, you'd have a real sales job on your hands with just this one item alone.

And pretty soon, the woman of the house is going to come to understand the importance of brass goods. She's going to realize that in other homes, the brass goods never gives trouble and she's going to insist upon this same material for her home.

American Brass Goods, consisting of a complete and very high quality line, provide the kind of brass goods that women want. Neat appearing in the exposed parts, highest quality in the wall.

Ask your jobber about American Brass Goods *now!*

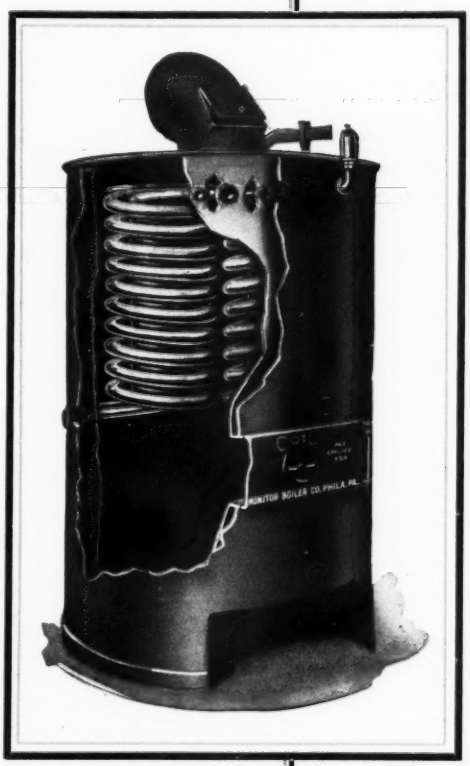
Write us for catalog of new additions to the "American" line.

AMERICAN SANITARY MFG. CO., ABINGDON, ILL.

American

COIL

STEEL HEATING BOILERS AND WATER HEATERS



FOR OIL BURNING

All of those features, so necessary to the proper and most economical use of oil as a heating fuel, will be found in the Coil Steel Heating Boiler.

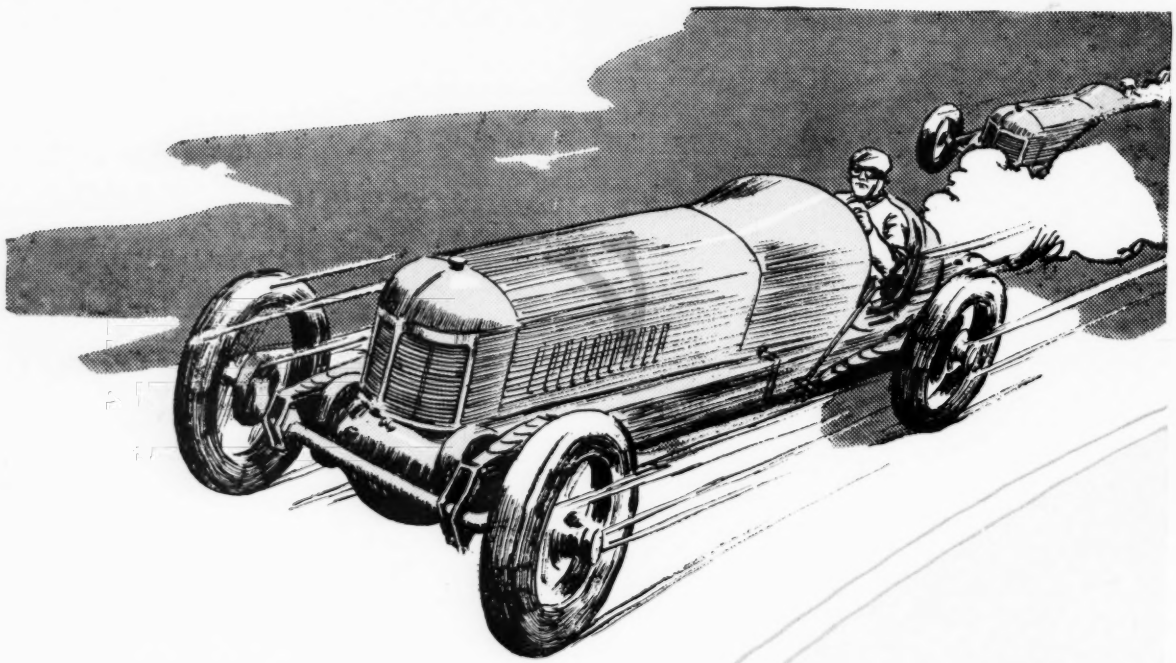
This boiler has been so designed that in actual installations it is saving users from 25% to 40% of their former fuel bills.

Isn't this boiler worth your investigation—in your own interests as well as those of your customers?

Write for full details of the Coil line of Steel Heating Boilers and Water Heaters.

MONITOR BOILER COMPANY

1505 Race Street :: Philadelphia, Pa.



Out in front and going strong

A LEADER in sales and service from the start—that's Williams' Improved "Vulcan" Chain Pipe Tongs. Why? Because they are *built* to beat all others. Wholly made from wrought steel; double ended reversible jaws that mean long life; straight cut teeth for thorough gripping pressure and proof-tested, CERTIFIED chain. Small wonder that the "Vulcan" has earned a reputation for efficiency, and dependability unrivalled in the trade.

Every GENUINE "Vulcan" is fully guaranteed.

Know more about these famous tongs. Write TODAY for illustrated literature.

J. H. WILLIAMS & CO.

"The Wrench People"

New York **BUFFALO** **Chicago**

GENUINE

WILLIAMS

SUPERIOR DROP-FORGED TOOLS

"VULCAN"

IMPROVED

A Letter from Harry G. Nye

July 14, 1928

To the Plumbers and Steamfitters
of the U. S. A.

Dear Friends:

A doctor friend of mine—not my doctor you understand but a friend of mine—that's why he is a friend of mine—anyway a doctor who knows that I know something about salesmen brought me a case the other day. Now don't misunderstand me; I mean a case of sickness. It was a very strange case indeed,—it was like this: he had a patient, a salesman, who was going insane because he couldn't get his mind off his work.

Yes, I said salesman. So the doctor came to me because he knew I was a salesman and asked me if I could suggest anything to take a salesman's mind off his work.

Say could I! I asked him if he had tried liquor. Being a doctor he hadn't. Well I told him to get the young man interested in bootleggers and their product and to keep telling him he could stand more liquor than any man he ever saw without hurting him. That sure would fix him. And then, if that didn't do, had the young man ever bet on horse races? Get him to follow the ponies; not with a broom I don't mean but with a form sheet which is worse. Let him think that he knows just how the horse will run, when the man who owns it hasn't the least idea.

Or if he doesn't care for the ponies, let him tackle the stock market. Let him buy a few stocks and get his friends to give him a few tips. Get him to go up against Wall Street and persuade him to purchase a few gilt edge lemons on margin. In a couple of weeks he won't look at a price list.

Well I saw the doc the other day and I says, "Doc how's your man? Has he got his mind off his business?" and he says, "Yes, completely cured." "Liquor?" "No." "The ponies?" "No." "Stocks?" "No."—"No, it is a yellow haired waitress he met at Logansport." Give the fellow credit -- he had hit on the surest cure himself.

I do not know anything that will take a man's mind off his business quicker or keep it off longer than a yellow haired waitress and I know only one thing that works faster or smoother and does a completer job than a yellow haired waitress and that's a Nye Die. You are safe in recommending them to your plumber friends. Nye Dies, I mean,—in fact using Nye Dies is what makes your choicest customers.

Your friend,

Harry G. Nye

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NYE

Thin Blade Cutter Wheels Knurled or Smooth Edge

Made to Fit All Standard Makes of Pipe Cutters

Knurled Edge

Smooth Edge

Nye cutter wheels are made from the highest grade tool steel, and are hardened and tempered in oil. Blades about 1/16th of an inch thick and straight from hub to cutting edge. Cut with one-third the time and power required by old type wheels. And also they are—

ABSOLUTELY GUARANTEED

OTHERWISE KNOWN AS
THE NYE TOOL & MACHINE WORKS
MANUFACTURERS OF HIGH GRADE PIPE TOOLS
4120-30 Fullerton Avenue Chicago, Illinois

"*. . . faster! faster!*" cried the Queen. And they went so fast that they seemed to skim through the air . . . Alice looked round her in great surprise! "Why, I do believe we've been under this tree the whole time! Everything's just as it was!" . . . "Of course it is," said the Queen, "you see it takes all the running you can do, to keep in the same place."

[*Alice in Wonderland "Through the Looking Glass"*]

". . . faster, faster!" . . . Every hotel was up-to-date—once. To keep it up-to-date means eternal vigilance—constant attention to details. Leave it alone and it goes backward . . . Faster, faster—read in the column at the right how a great Minneapolis hotel saved money and made money by a small investment in modernizing the heating system.

- since 1888

Webster

Systems of Steam Heating

Warren Webster & Company, Camden, New Jersey
Pioneers of the Vacuum System of Steam Heating
52 Branch Offices — *In Canada, Darling Bros., Ltd., Montreal*

More than 46,000 installations in America's finer buildings

When the Leamington Hotel (Minneapolis) was built, more than fifteen years ago, its heating system was considered to represent the best practice at that time.

But standards of heating efficiency have advanced materially since 1910 . . . and the alert management of a prominent apartment hotel, serving both permanent and transient guests, must be on the watch for new developments which make for the greater comfort of guests.

In 1921, it was decided to modernize the system through the use of Webster Sylphon Attachments which were installed that year on practically all radiators. The result of this modernization was a net annual saving of $534.94—*a return of 17 per cent on the investment!*

A temperature of from 70°-75° is easily maintained in every room . . . in addition, improved economy . . . heating service contributes to the greater comfort of their guests.

Your heating system of 15-20 years ago may have been the "last word" when installed. Has age overtaken it? If so, an astonishingly small investment will transform it into a modern Webster System of Steam Heating. Send in the coupon for a preliminary survey.

Fill in and mail to Warren Webster & Co., Camden, N. J.

Name of Plant or Bldg. .....

Location .....

Area and Volume Heated .....

Type of Heating System .....

☐ Gravity Steam ☐ Hot Water
☐ Open Return Line ☐ Vacuum
☐ One or Two Pipe ☐ Warm Air

Pressure Carried .....

Name of System (if any) .....

How many Boilers .....

Size .....

Vacuum Pumps ☐ Electric..... ☐ Steam.....

Troubles now experienced (State in margin) D. E. 7-28

"Domestic Engineering" business building stories are all based on the actual experience of retailers in the field.

Between Ourselves

"Certified heating is a means toward organization."—Harry M. Hart, past president of the H. & P. C. A.

The building on the front cover is the new Nebraska state capitol at Lincoln, a monument to the modernity of the present-day Middle West. Unlike the usual state capitol building, with its stereotyped dome, the tower of the Nebraska building reaches into the sky as any modern office building.

Your Editor

AS MODERN as the building itself is the plumbing installation it contains. Practically every floor in the building has toilet facilities, but a great many of them have different floor plans. The complications which arise from such a layout were solved to a great extent by isometric, the modern method of drawing for plumbing work. R. M. Starbuck, Jr., describes the plumbing in this new building in his article, "Isometric for Tall Buildings." The article explains that isometric is practical for large installations as well as for small, and tells of its use in the Nebraska capitol tower.

OVER a year ago "Your Weekly," seeing the potentialities of the remodeling market for plumbing and heating materials, began to advocate that plumbing and heating contractors make efforts to secure new business from old homes. One of the associate editors of "Domestic Engineering" gave talks to several local associations of plumbing and heating contractors. The talk he gave was so well received that since, he has been invited to tell the remodeling story to several state associations. It indicates "Domestic Engineering's" stand on the tremendous progress in merchandising made by the plumbing and heating contractor since the idea was first stressed as necessary to business progress. It was given recently before the annual convention of the National Association of Plumbing and Heating Salesmen, and is published this week under the head "A Billion Dollar Market."

MASTER plumbers are constantly confronted with the blame for the poor taste in water from faucets. For the most part, the plumber has no more to do with the taste than the mason who built the house, but the owner always looks to him as the cause. In many cases this odor is begun in open reservoirs, and the master plumber is in no way to blame. In this issue an article appears on the subject by Chester Cohen, and is called "Eliminating Tastes and Odors Caused by Algae in Water." It points out some of the causes of odorous water.

"TO say that I am interested in your paper is putting it mildly. Words fail to express the pleasure I take in going over it," writes P. J. Broderick in referring to "Domestic Engineering."

ANY industry can progress only when the members of that industry take care to see that its ranks are filled with men who will be an asset to the industry. Young blood coming up into the plumbing and heating industry should be taught to take the place of those who have been responsible for its development. The National Association of Master Plumbers has not lost sight of that fact, and the committee on apprenticeship of that organization is one of the most active ones it has. Proof of the work of this committee is shown by its report, made at the recent convention of the association, and published in this issue.

THE home owner of today is far more concerned, apparently, with the interior than he was in past years. An appeal to this sense of beauty has been made by the heating field in the concealed radiation now made by a number of manufacturers. Harold L. Alt has an article called "Concealed Radiation" in this issue. It describes briefly some of the uses of this type of heating element, and gives a good idea how it is made.

MANY subscribers will be glad to know that another of the famous "Dolan and Olson" stories is scheduled for publication in next week's issue. These two plumbing and heating comedians "take to the air" in modern fashion, and their description of their adventures will be interesting as well as amusing. Bear in mind that these men are real plumbing and heating contractors, not the figments of a fertile editorial imagination.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe

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DOMESTIC ENGINEERING

Vol. 124, No. 2
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The Plumbing and Heating Weekly

Chicago, Illinois
July 14, 1928

OBSERVATIONS

Selling Simplification

In the simplification and standardization work to which practically all industries have committed themselves there has been the controlling argument that such simplification and standardization of styles, sizes and nomenclature are conducive to cutting costs of production, sales, installation and maintenance and are, therefore, a money saving and a money making idea. It is an argument the logic of which is apparent to all business men, and the plumbing and heating industry in all its branches is in favor of such programs and is carrying them through in the cases of a number of lines.

The logic of simplification in the production of goods applies with equal force to the selling of goods. Simplification implies discarding, or eliminating, those items for which there is little call and concentrating on those more commonly used. Such concentration means that effort is being expended where results are sure. And that is just what should be done in selling.

True for Both

Just as it has been proved that 80 per cent of the business is done on 20 per cent of the products made, so has it been proved that 35 per cent of the master plumbers and heating contractors do 77 per cent of the business done. Manufacturers and wholesalers take the first percentages and standardize, or concentrate, largely on the 20 per cent of the products. But too few of them take the second percentages and concentrate, in their selling policies, on the 35 per cent of the master plumbers and heating contractors.

As we say, the argument for one applies to the other, and if it were followed as consistently in selling as it is in producing there would be better business for the worth while master plumber and heating contractor—and, naturally, for the manufacturer and wholesaler. Production efficiency is at a high point. Similar principles of efficiency in selling are needed in this industry for everybody's benefit.

A BROADENING FIELD

The successful master plumber and heating contractor overlooks no opportunity to build his business. Through the very nature of plumbing and heating work he is well equipped to handle the technical processes of sprinkler installations, sewage disposal systems and kindred engineering projects as well as to merchandise successfully many appliances having to do with home comfort or public health. More and more is the master plumber and heating contractor being called upon to act as an outlet for products which require his training to sell successfully. And he is awake to every such opportunity for it means added profits and a much stronger position in his community.

Higher Education

Two years ago, at the convention of the National Association of Master Plumbers at Louisville, Ky., the work of the national scholarship committee reached fruition in the awarding of four scholarships to sons of master plumbers at Carnegie Institute of Technology. It was five years ago that the national association decided to establish a college engineering course in plumbing and heating. It is well known now how efficiently the committee in charge of the plan, with the aid of the generosity of the association itself, the ladies' auxiliaries and various individuals, set about selecting a school, raising the necessary fund for the scholarships and selecting the boys. And when, at Louisville, the four scholarships were actually awarded, it meant a big and a worth while job done.

The committee was not content to rest on that record, however. It wanted a fund of sufficient proportions to support eight permanent scholarships. The year following the Louisville convention was one of work, with progress to report at the convention in Minneapolis. Another year, with the convention at Memphis, and the committee was in position to award two more scholarships. Next fall, therefore, there will be six boys at Carnegie, learning plumbing, heating and ventilation through the scholarships secured by this hard-working committee of the National Association of Master Plumbers.

A Fine Work

The job the committee has set for itself is not completed yet. It wants enough more money to take care of two more boys—to make the total of eight. But six, eight or twenty—it has started a wonderful thing for this industry. We would like to see hundreds of boys going through this kind of education. And we recommend to every father who is able to do so that he give his son the educational advantages which have been set up through the working of the scholarship plan.

National Broadcasting Company's building in New York City

The Radio *and* Ventilation

ARE you a radio fan? And are you "music wise"? Sometimes, it has seemed, especially on a hot summer evening, that one cannot answer both questions with a "yes." For we all, many a time, have listened to the screeches coming out of a loud speaker and wondered why the artist did not tune up, especially if he happened to be playing a stringed instrument. Of course we blamed the artist, or the broadcasting station, or our super-something-or-other-dyne. Seldom have we blamed old General Humidity.

But the men in control of broadcasting stations have known what was wrong. They've listened in on their own "broadcasts" and have agreed with our estimates of quality. Some of them realized that something had to be done or their listeners would desert them. So they enlisted the help of the ventilating engineers.

In the sweltering evenings of the summer of 1928 one can decide how successful these ventilation experts have been in their efforts to provide better radio music. If you are listening in on a program broadcast through one of the great chains of the National Broadcasting Company, one of which is in the studios in the new building of that company at 711 Fifth avenue, New York City, and the music comes in crystal clear, give thanks to ventilating engineers.

Everyone knows, of course, that broadcasting is a new art, that it has grown up from nothing in 1921 to a great industry today. Almost everyone knows, too, that it is extremely difficult to send a program over the air in such a fashion that the tone at the receiving end will be acceptable. When the art was even younger, engineers found that it was extremely difficult to prevent extraneous noises, including echoes and the like, from also entering the microphone. So they made the studios sound-proof and almost air-proof. What was the result? When it was hot outside, it was almost insufferable in the heavily draped studio. Stiff collars soon melted, and perspiration oozed from willing artists' bodies.

No one can do good work when he is suffering from the heat, and musicians are no exception. Quality naturally suffered. This was especially true of stringed orchestras, as the perspiration from the players' fingers affected the strings, and very shortly the instruments got out of tune. Some leaders state that it was sometimes impossible to play through one complete selection without at least one stringed instrument losing the proper tone.

VENTILATING ENGINEERS SOLVE RADIO PROBLEM

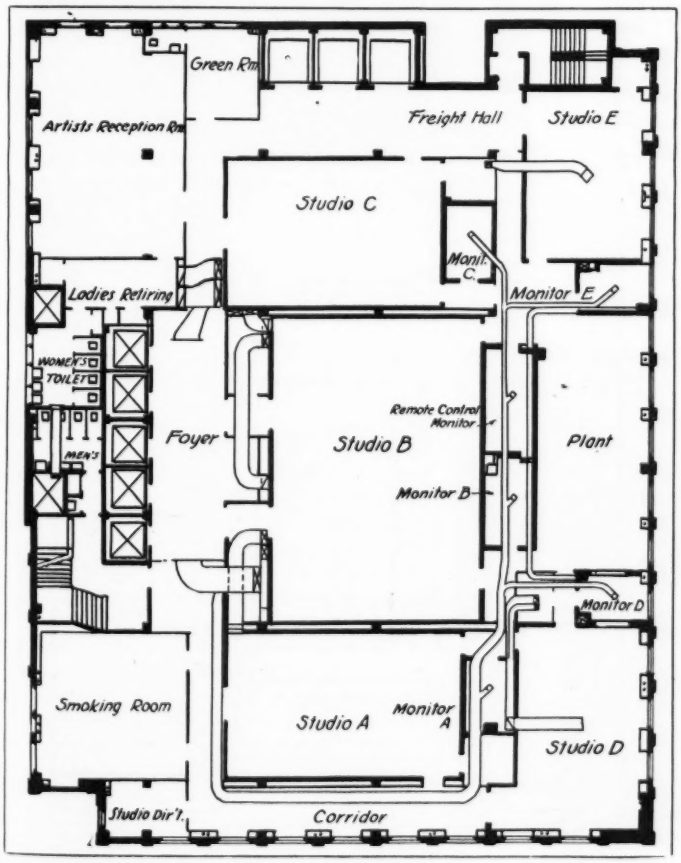
SUCH was the condition when the National Broadcasting Co. started its new building. And this was one of the problems facing the consulting, ventilating engineers, who were called upon to design a ventilating system that would serve the thirteenth, fourteenth and fifteenth floors of the building, where the studios are located.

Another problem that the engineers were compelled to meet was the prevention of any noise from air flow. The delicate microphone picks up every sound in a studio, and the sound of rushing air would make an inharmonious background to a musical number. It was equally true that the fans must work perfectly, and that neither fans nor motors could be permitted to transmit any noise, no matter how faint, into the ducts that lead to the studios. Of course, it is self-evident that there must be no drafts or dead spaces in the studios. There must be an even diffusion of air. In the summer this air must be properly cooled and the excess moisture must be removed. In winter the reverse is necessary. There must be sufficient heat and should be enough moisture added to the air to prevent the dry heat that dries up the skin, that makes the membranes of the throat sensitive and that makes one so likely to catch cold, for colds are the bane of singers, radio announcers and others whose voices must be kept in good trim.

Cut-away view showing various studios, battery rooms, control booths, etc.

Then different musical organizations do not agree on just the same indoor weather conditions. For instance, the crowd known as the Eskimos may want to get themselves into "atmosphere" by donning their furs. Naturally they need a cooler temperature than an act that requires South Sea Island "atmosphere." For this reason, the system has been so designed that each studio has independent heating and cooling controls, and there can be hot weather in one and cold in an adjoining room. Under ordinary conditions, of course, all studios, as well as the main reception foyers, anterooms, elevator lobbies, etc., are controlled together.

The ventilating engineers had to figure out the proper co-relation between temperature, humidity and air motion which would produce a mountain air climate. This meant an air condition that, winter or summer, would make the artists perfectly comfortable, and would remove any surplus of moisture in the summer. In the winter, of course, it was necessary to add enough moisture to prevent excessive dryness and to heat the air enough for comfort.



Layout showing the rooms and ventilating ducts on the thirteenth floor

In order to provide this in summer, the hot, humid, outdoor air is passed through a conditioning machine. This is a metal chamber containing baffles to break up the air. Hundreds of tiny sprays of water form a screen through which the air must pass, the chamber being designed to prevent the air from carrying water out with it. This water, of course, is properly cooled before passing into the conditioning machine, the degree being automatically fixed by the temperature of the air. The water from these sprays falls to the base of the machine and is returned to the pumps. The air, in the meantime, passes through its individual ducts to the eight studios and the auxiliary rooms, entering from the top of the rooms. The dehumidifier, with accompanying fans and motors, is at the top of the building, as can be seen by studying the drawing of the upper part of the fifteenth floor. Carefully designed outlets in the ceilings introduce the air, these outlets spreading the stream so that it does not strike the occupants squarely. Side wall outlets near the floor lead to the exhaust ducts.

The independent system of ducts helps in lessening the noise. With no connection between studios, much of the noise is eliminated. Each duct was wrapped on the outside with sound resisting material, and treated on the inside with a sound absorbing product. Careful figuring of curves and angles also helped, and broadcast engineers expressed themselves as satisfied that no noise enters the studios through the ducts. There is often noise developed by air flow, but this was eliminated in this job by careful study of the velocities of the air in the ducts and designing the offsets and turns correctly.

Referring again to the cooling of the air before it enters the studios—the reverse is, of course, true in the winter time. Not only is the air heated, but the dryness is prevented. As part of the heating is done by the spray water which is used as a cooling agent during the hot months, the air picks up the proper amount of moisture from the warm mist in the machine. Another heater is used to add more heat to the air after it leaves the machine if this is necessary.

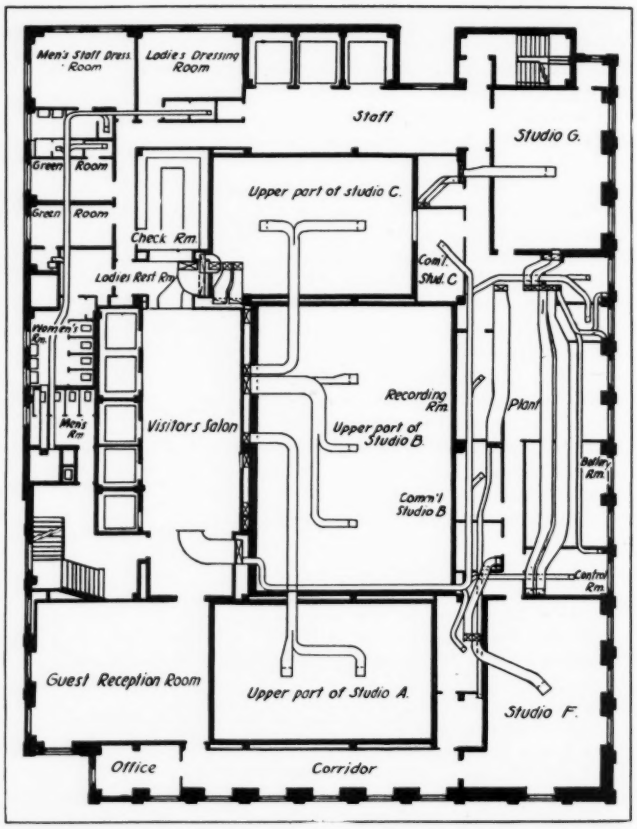
It will be noted from the accompanying tracings that the air enters through an opening on the pent house roof, really sixteen stories in the air. From the supply duct, the incoming air enters the dehumidifier, then the supply fan to its left drives it along the top of the fifteenth floor to a point midway of the large studio H. Here the duct is divided into three sections, each section diffusing 2,000 cubic feet of air per minute through the entrances in the ceiling. Separate, smaller pipes carry the fresh air to other rooms on the floor.

Studios A and B, which start on the thirteenth floor, run clear up through the fourteenth, which makes it necessary to provide enough air on the ceiling of the fourteenth story to take care of double the usual height. The diagram showing the fourteenth layout is self-explanatory. A study of the plan of the thirteenth floor piping will show exceptionally well the way the return lines are laid out. Of course, on these plans, it is impossible to show the vertical risers clearly.

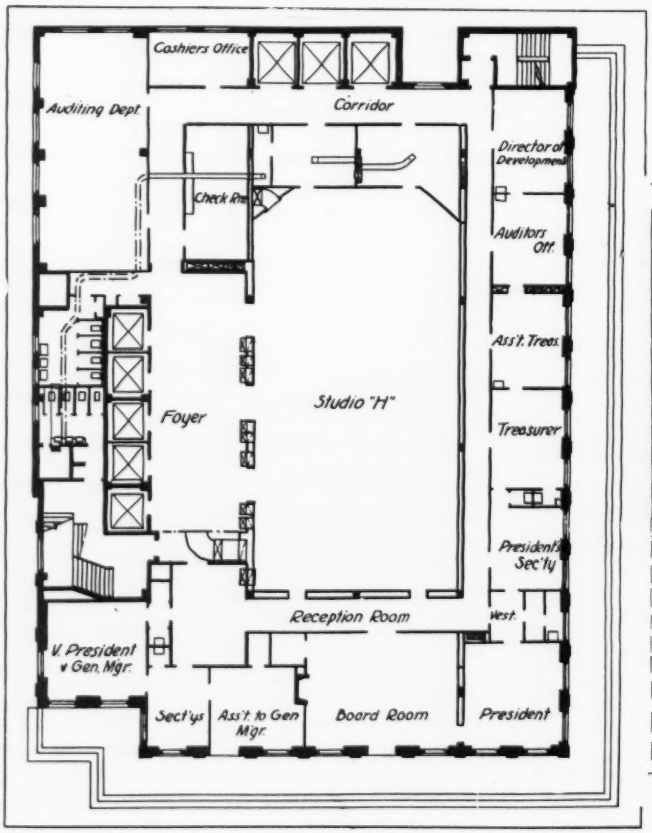
Incidentally, these diagrams also give the radiator and other heating directions. The heating job, of course, was part of the system which is used throughout the building. The National Broadcasting Co. uses only the upper floors for its studios and offices.

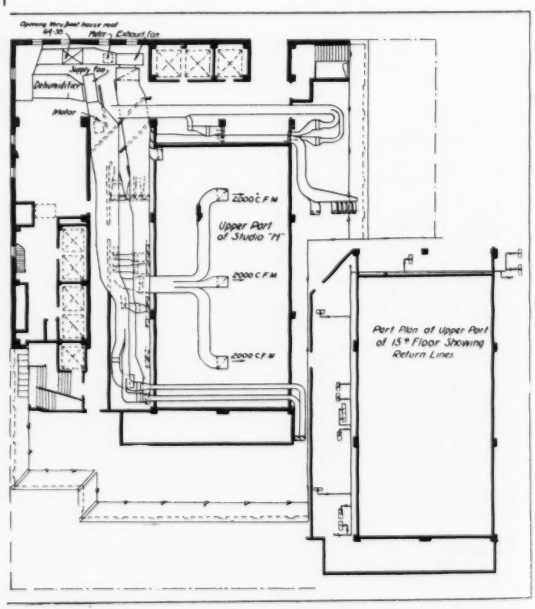
The artists, employees and guests have ample toilet facilities. On the thirteenth floor, there are

(Continued on Page 90)



Layouts showing the rooms and ventilating ducts on the fourteenth and fifteenth floors





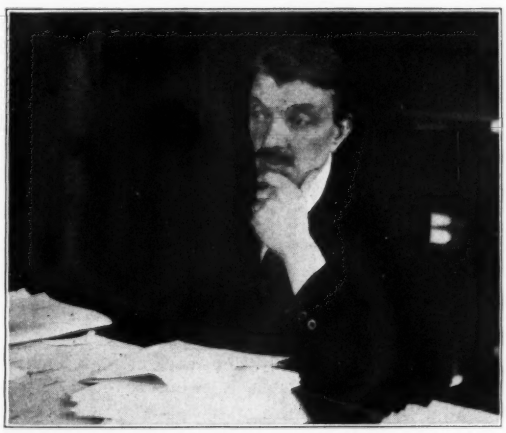
Layout of the ventilating equipment on the upper fifteenth floor

Artificial Sunlight

Radiant heat, as distinguished from "dark radiation", was the subject of an address a short time ago by A. H. Barker, a renowned engineer of London. He explained why radiant heat places less strain on the heat regulating mechanism of the human body and is consequently more comfortable and healthful.

A new method of heating

ANNOUNCEMENT is made of a new method for heating churches and other structures with high ceilings. It is stated that this method has been worked out successfully in Amsterdam (Holland) by Dr. Warner Lulofs, director of the municipal electric works of that city.



Dr. Warner Lulofs, director of the municipal electric plant at Amsterdam, Holland, who developed the method of heating by "artificial sunlight"

This method involves the use of two electrical heat reflectors which have been located on the lower part of the ceiling in the new Jewish synagogue on Gerard Dou street, Amsterdam. The location of these reflectors enables the heat rays from them to reach every person in the auditorium which has a seating capacity of about 250 people, and a capacity of 1,000 cubic meters.

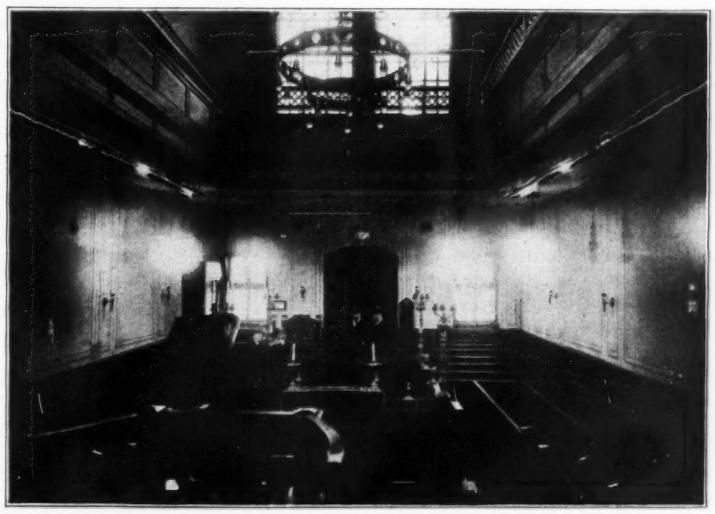
The results obtained are claimed to be surprising; as soon as the current is turned on, a pleasant sunbeam-like heat is experienced, which produces an effect similar to the sunshine on a bright spring day, warming the occupants through and through but entirely without the sense of oppressiveness so frequently felt in heated rooms.

The idea was suggested to the inventor by the fact that the sun's rays, although coming from an enormous distance, impart very little of their heat to the air through which they pass. He also appreciated the agreeable effect on the body of the sun's rays especially in the early days of a cold spring. The new device is the result of an effort to combine these natural phenomena into something of practical use in the heating field and, as a result, this new system of heating was developed.

In Amsterdam, much trouble has been experienced in high rooms on account of the hot air rising to the ceiling and cold draughts falling down along the outside walls so that it has been believed that the electric footstool method was the most satisfactory means of heating rooms of this kind.

With this method it was found that the heat remains close to the floor and the fresh air above, giving ventilation without drafts. This is the method adopted in the large protestant cathedral in Utrecht which cost about $2.00 per person to install.

In the new electric reflector system installed in the Jewish synagogue, it is said that the current consumption is only 29 Kw. and when in full use costs only $0.46 per hour. The full heating capacity is considered ample for the coldest weather that is likely to occur in the climate of Amsterdam and it is expected that the average cost for the winter season will be in the neighborhood of $0.32 per hour based on a mean current consumption of 20 Kw. and cost of electricity in Amsterdam.



Interior of Jewish synagogue showing reflectors which provide heat by "artificial sunlight"

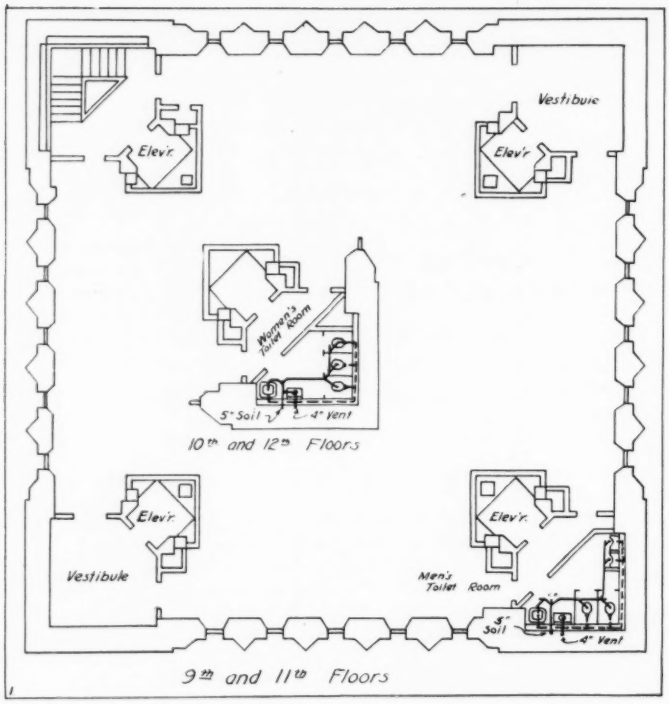


Fig. 1

Isometric *for* Tall Buildings

By R. M. STARBUCK, JR.

QUITE a number of articles have appeared in "Domestic Engineering" on the subject of isometric drawing. As we remember it, these articles dealt principally with plumbing installations in dwellings, but not with those to be found in large buildings.

The principles involved must be the same, whether the installation is large and complicated, or small and simple. While such a statement is true, there is considerable to be said concerning the manner in which those principles are applied.

It is not generally a difficult matter to show the entire plumbing system for a dwelling in one elevation. In the case of a large building, however, the situation is different. To show in one isometric elevation the entire plumbing system for one of our large modern buildings, for one of our skyscrapers, for instance, would be an impossibility, and for two principal reasons. In the first place, when such buildings run to thirty-five and forty stories, and higher, it becomes practically a physical impossibility to show all the work on a single elevation, even though isometric. In the second place, if such a drawing were to be made, there would be such a maze of lines required to showing the piping and connections, that the whole drawing would be confused and meaningless.

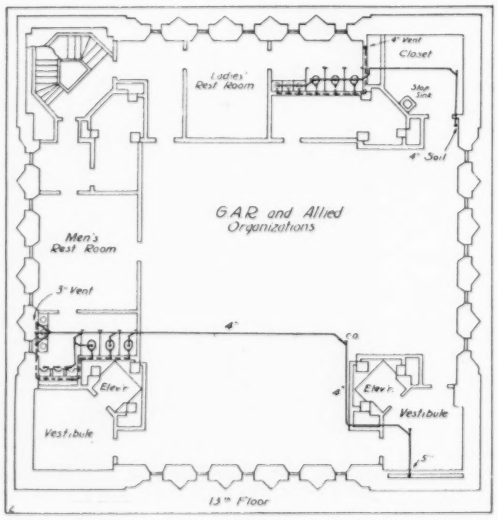


Fig. 2

While no hard and fast rule can be laid down, our knowledge of the proposition leads us to believe that each building and each set of plans presents a problem distinct in itself, and one problem will of necessity have to be handled differently from another, owing to the difference in magnitude of the two, the difference in the layout, etc.

ISOMETRIC A WONDERFUL HELP

ISOMETRIC drawing is assuredly a wonderful help in truthfully picturing a plumbing layout. Its one drawback, according to our own idea of the subject, is that, unless good judgment is used, an elevation showing a complete system will often be confusing and difficult to understand. Our own judgment is that it is often, and per-

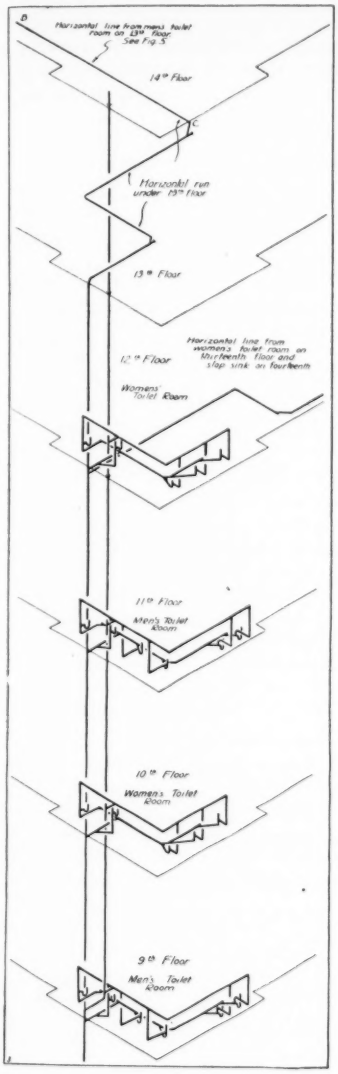

Horizontal line from mens toilet room on 13th floor. See Fig. 5
14th Floor
Horizontal run under 13th Floor
13th Floor
Horizontal line from womens toilet room on thirteenth floor and slop sink on fourteenth
12th Floor
Womens Toilet Room
11th Floor
Mens Toilet Room
10th Floor
Womens Toilet Room
9th Floor
Mens Toilet Room

Fig. 3

haps generally best to select different parts of the work to be shown by separate elevations. In one instance the problem might be best solved by making a separate elevation of a stack; in another case, two or more stacks might be included in a single elevation without confusion, and in still another instance, it might be an elevation of a single toilet room.

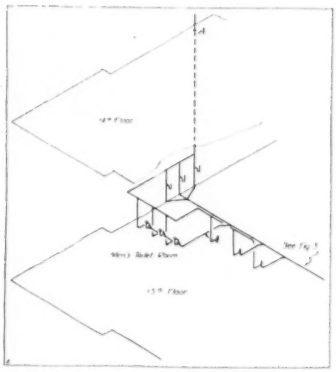


Fig. 4

serving this tower runs straight down to the basement without receiving any additional fixture discharge. We have selected the tower work as it is of such nature as to bring out the points that we wish to emphasize.

Fig. 1 shows the floor plan of the tower for the ninth and eleventh floors, and the inset detail shows the tenth and twelfth floors. Fig. 2 shows the floor plan for the thirteenth floor.

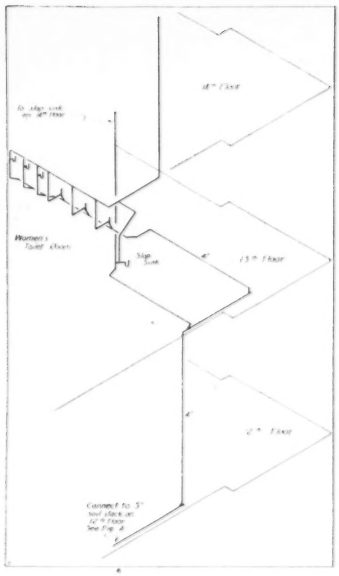


Fig. 5

Fig. 3 shows an isometric elevation of the corner of the tower in which toilet rooms are located on the ninth to twelfth floors, with connections into the stack from other toilet rooms, and separate fixtures on the thirteenth and fourteenth floors. You may wonder why we did not include the thirteenth and fourteenth floor work in this same elevation, and our answer will serve to bring out one of the

ISOMETRIC AS APPLIED TO THE NEBRASKA STATE CAPITOL

PERHAPS we can illustrate this and other points that we want to bring out by referring to Figs. 1, 2, 3, 4 and 5. These illustrations relate to the plumbing installation for the new state capitol of Nebraska, which has been erected at Lincoln, Neb.

We are indebted for the plumbing plans of this magnificent building to James H. Pine, who, as we understand it, has superintended the installation of the work for B. Grunwald, Inc., plumbing and heating contractors of Omaha. We might state that the present use of these plans covers only a very small part of the entire installation, and that a little later we plan to give a description of the plumbing layout.

One of the striking features of the Nebraska state capitol is its tower. We are unable to give the height of the tower, but it is sufficient to state that from the ninth to the fourteenth floor, inclusive, the plumbing layout is of much interest. From the ninth floor the soil pipe stack

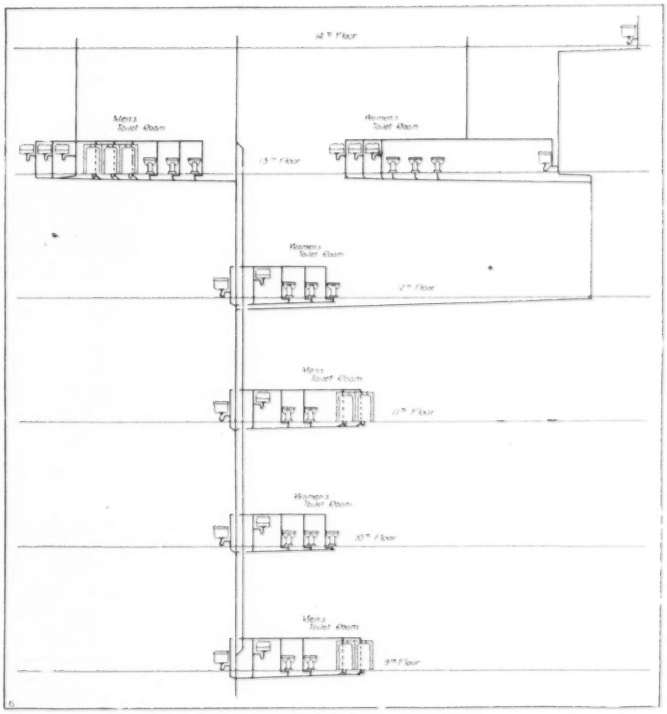


Fig. 6

important points which we would like to emphasize.

When we first began to lay out the elevation in Fig. 3, we included in it the two large toilet rooms on the thirteenth floor, and, when the work had been nearly finished, found we had run into one of those cases where the isometric layout seemed to be confusing. Those of you who have studied isometric elevations of plumbing layouts will know what we mean when we say that it was difficult, without close study, to understand whether certain runs were on one floor or another.

A little study of the situation seemed to show that the method that would show the plumbing layout for the tower most clearly would be to show the work in three separate elevations, as shown in Figs. 3, 4 and 5, indicating by notes on the principal elevation where and how the rest of the layout connected into the tower stack.

There are several arguments for this method, and we would surely be glad to hear from anyone who may see advantages in putting all the work of these three elevations into one elevation.

In the first place, when one elevation is made to show all of the work of an extensive plumbing system, the drawing must be made on a very small scale, or the sheet on which the drawing is made must be so large as often to be entirely impracticable.

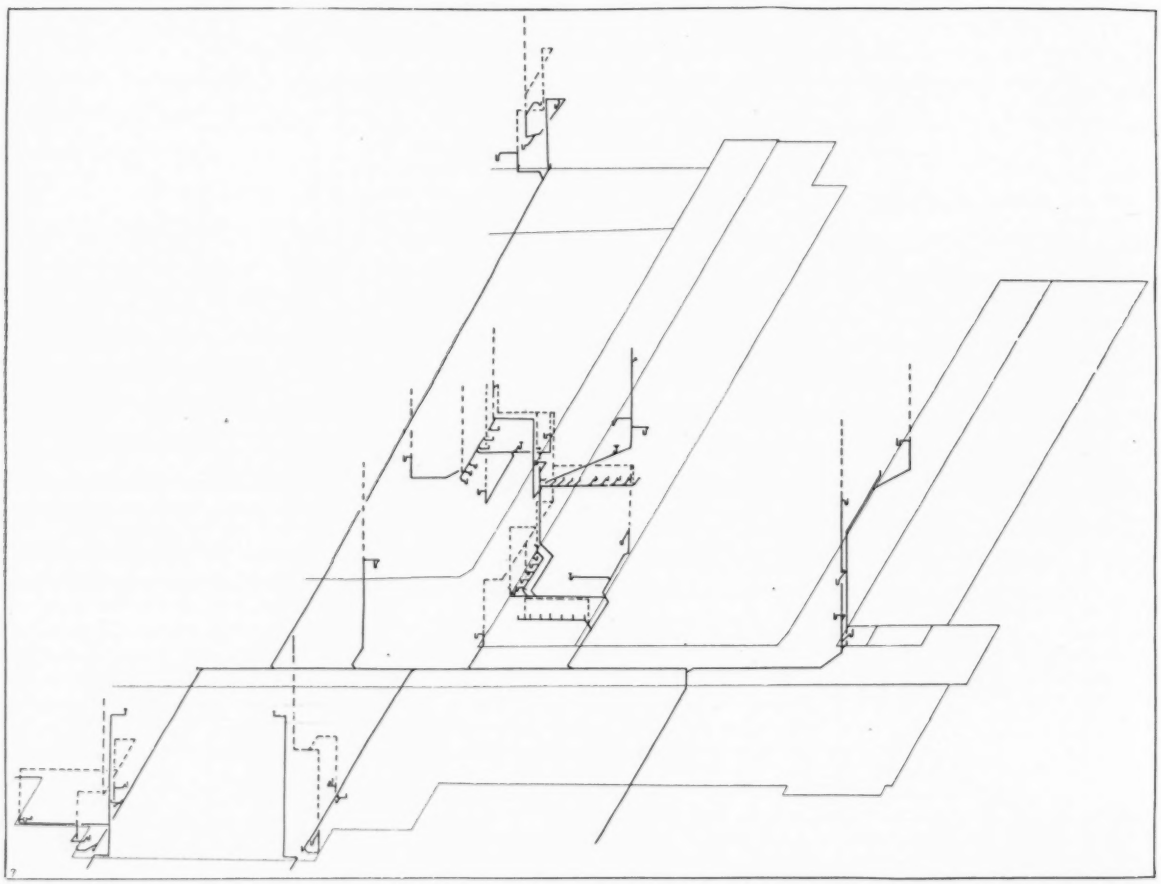


Fig. 7

This method, then, of detailed elevations, as we may call them, allows the drawings to be made on a much larger scale, which is a distinct advantage.

Unless the one making the drawing is a trained draughtsman, he is likely to become confused, if not discouraged, in making the comprehensive elevation, whereas he performs the work so much more easily and comfortably if he takes only a group or a stack to work upon in any one elevation, and moreover, these detail elevations are much clearer to those who are to do the installing.

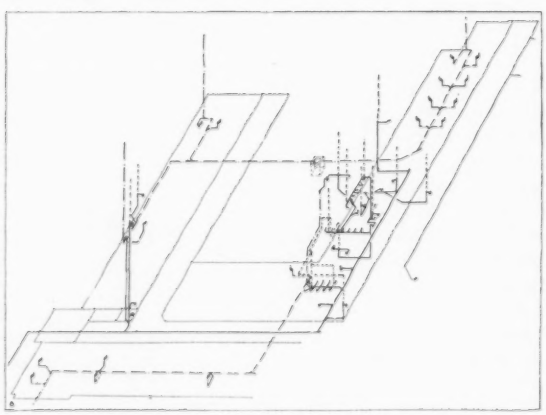


Fig. 8

When the work now shown in Figs. 4 and 5 was combined in one elevation, as we first attempted to work it out, the result, as we have already said, was confusing. As now shown, however, it seems to us that in both il-

(Continued on Page 79)

Concealed Radiation

By HAROLD L. ALT

EVERY apparatus or device which is distinctly and inherently different from other types of apparatuses or devices for serving a similar purpose frequently finds certain sets of conditions where it is peculiarly suitable. It creates its own niche and its own market.

The place on the market of the concealed or the exposed radiator, is influenced by various considerations. Some of these are weight, floor space required, efficiency and painting requirements. There are doubtless situations in which one will be demanded by the customer, and situations in which the other will be required. The concealed radiator can be used where it would be impossible to use an exposed radiator. Under other conditions the exposed radiator may be just what the customer desires.

The two types of radiation are made of different metals. There is a difference in the cost of these metals. There is a difference in the amount of work required to make the different types. This affects the differences in cost of the two types.

It is apparent that unusual inventive talent has been employed in producing radiators of modern design. Manufacturers have succeeded beyond all expectations in producing radiators having qualities that appeal to the home owner as well as to builders of apartment houses and hotels. One of the interesting types of concealed radiation is described in this article.

The manufacturer of this radiator points particularly to its little weight and to the small amount of space it occupies in comparison with its heat output.

Fig. 1.—Brass side plates used to form the radiators described herein

Fig. 2.—Nipple which is placed between radiator sections

Fig. 3.—Octagonal spacer for this type of concealed radiation

Fig. 4.—Section which is welded around edge and along two middle strips

Fig. 5.—The finished radiator

It is formed of stamped brass side plates as shown in Fig. 1, which are electrically welded together in pairs so as to form a hollow core on which thin brass radiating plates are mounted. The two side plates have a nipple (Fig. 2) placed between them which is shouldered to prevent distortion of the brass wall when pressure is applied to the spaces around the end caps.

Then the shouldered nipple of each section is screwed into an octagonal spacer, see Fig. 3, and another shouldered nipple from the next section is screwed into the other end of the same spacer. This is kept up until the last section is reached in which the spacer is finished off with a screwed end cap.

When the sections are welded, they are not only welded around the edge but are also welded along the two strips down the middle, making three steam or water ways as indicated in Fig. 4. The center welding holds the sides of the sections together and gives additional strength when the radiator is under pressure.

The radiating fins extend out at right angles to the radiator sections and are secured in position by dipping the section, with the fins already located thereon, into a solder bath to perfect the union. The finished product then has the appearance shown in Fig. 5, while the section all piped up is as illustrated in Fig. 6.

It is claimed that these radiators are rust-proof, are not injured by freezing and can be put into walls safely and without danger of leaks developing in the radiator itself.

Owing to the concentrated heating surface, these radiators may be placed in limited spaces. This is

Fig. 6.—Arrangement of piping connections of radiator

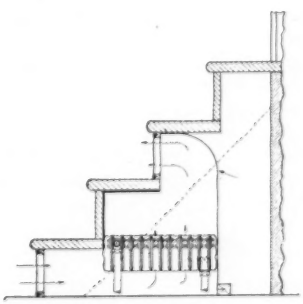


Fig. 7.—Typical installation in tight place under stairs

illustrated in Fig. 7 where the space under a stairway has been used for setting up such a type of radiator and it will be noted that the radiator barely projects above the top of the first step.

Sections are made from eighteen inches to seventy inches in length and are rated from five and one-half square feet for the eighteen-inch section up to twenty-five square feet for the seventy-inch section.

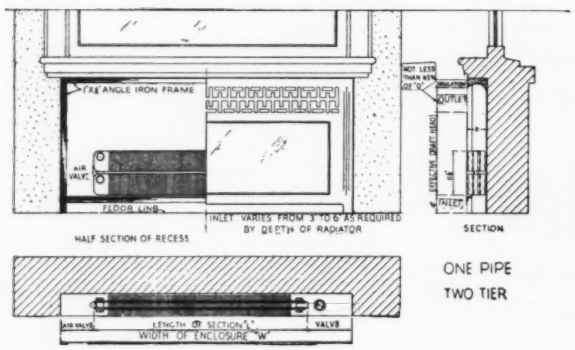


Fig. 8.—Installed under window sill with grilled enclosure over recess

These radiators are particularly suitable for placing under window sills with a grilled enclosure over the recess as shown in Fig. 8, as shown on this page, or for use in bath rooms located under lavatories, in which case, a small lacquered bath room cabinet is furnished as part of the unit, the complete installation appearing as shown in Fig. 9.

These bathroom units come in the sizes given in **Table 2.**

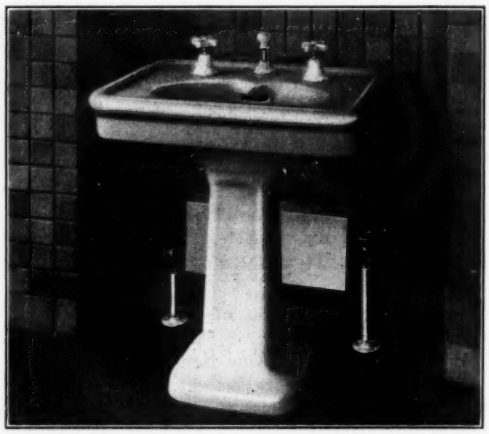


Fig. 9.—A radiator concealed in lacquered cabinet under lavatory

TABLE 2
Bathroom Units

No.	Rating in Sq. Ft.	No. and Size of Sections	Dimensions Inches
1	5½	1—18 in.	3x18¼x8
2	7	1—22 in.	3x22¼x8
3	11	2—18 in.	4x18¼x8
4	14	2—22 in.	4x22¼x8
5	16½	3—18 in.	5½x18¼x8
6	21	3—22 in.	5½x22¼x8

Note.—Dimensions are given width by length by height.

A Billion-Dollar Market*

A survey of the possibilities of new business from old homes

THE business paper serves its industry very much as the daily newspaper serves the public. It is, and must be, sensitive to what is going on in the industry. It gathers, sorts and classifies the news of the industry from hundreds of sources. It hastens the application of new ideas to the problems of the industry in this way: Active minds, thousands of miles apart, are working on the same idea. The news of those activities reaches the business paper; it studies the ideas and, if they are found valuable and applicable to the industry at large, it formulates a program. It informs the industry what these isolated individuals are doing, and inaugurates the movement throughout the industry.

An instance of that is the attention now being given by our industry to remodeling. Men, here and there, were developing this type of work. Other branches of the building industry were thinking about it. Just sixteen months ago we inaugurated the monthly merchandising feature section, which led to the stressing of this market for new business in old homes throughout the industry. I shall have more to say about that later.

THE TURN OF THE TIDE

NOW, this talk is not in eulogy of the business paper, or of any business paper. I simply want to get clearly before you the reason for presenting to you the facts we have gathered.

Just this, gentlemen. We are at a turn in the tide. We all recognize that. As the business paper of your industry, we have observed certain signs which seem to us to indicate that the industry is, at this moment, at a point where it can, if it will, build the greatest volume of profitable business it has ever enjoyed. Various things lead us to this conclusion: First, the attitude of the public mind; second, the great interest in merchandising and better business management within the industry; third, favorable market factors. We want to lay these things before you, indicate the extent of the industry's opportunity and the part you, as salesmen, may play in it.

We want to lay them before you because there are a number of facts which put you, the salesmen of the industry, and us, the business paper of the industry, in the same boat. I have looked forward to this meeting with special interest. I have attended a number of meetings of manufacturers, of wholesalers, of contractors. And I've heard it said that we have too many salesmen in the industry. I've heard it said that there are too many men who aren't selling but are merely taking orders. And I've heard it said that there are too many trade papers. Is it true? I mean generally, of course. I take it that any man who attends a convention like this is all that the word salesman implies—he is the creator of sales.

So, because the same challenge has been flung to you and to us, the business paper, we want to examine with you just what course of conduct will best serve us to justify our place in the scheme of things. Mind you, I have no doubt that we here have justified our places in

*An address made by a representative of "Domestic Engineering" at the third annual convention of the National Association of Plumbing and Heating Salesmen.

the sun. But we are all—the salesman and the business paper—something like these revivalists. We appear periodically, and our mission is to arouse new interest in progress. How shall we best take advantage of this turn in the tide?

FAVORABLE FACTORS

FIRST let us take up briefly the attitude of the public mind. The war fever is spending itself. Even the flappers are growing older, marrying, and, with family responsibilities on their shoulders, are beginning to want greater stability in home life. Responsibility, as even the reddest of the Russian communists found when they had their chance at governing, breeds conservatism. Then, too, America is probably more "home-minded" than it has ever been before. The "Own Your Home" movement did much to foster that attitude of mind. Walter J. Kohler, speaking at the time the Home Modernizing Bureau was organized, struck a significant note when he said: "It is time that we fostered that pride in home life, and in family traditions, which have so long been allowed to slip." And the money is there, as will be shown later, to gratify this desire for better living standards, which become more intensified every year.

Second, there is the great interest in merchandising and better business management in our industry. You men know that in the last seven years there has been a distinct change in the attitude of the industry. I only need point out the fact that the reports of trade conventions are no longer the reports of technical discussions. Business methods, merchandising, credits, management—all the factors of successful business-building—occupy the time of our retailers in their conventions. A technical paper is almost a rarity.

Briefly to summarize: You have the "Certified Heating" idea; you have the work of the Plumbing and Heating Industries' Bureau, stretching back over these seven years, fostering the growth of the merchandising idea; you have its recent announcement of a reorganization of its field activities; you have the inauguration in April of the national advertising campaign; you have the Philadelphia campaign.

Recently, as you probably know, there was a meeting in Chicago in which practically every major division of the building industry was represented. At this meeting, at which Mr. Kohler made the statement just quoted, he was elected president of the Home Modernizing Bureau. He had taken an active part in fostering this co-operation on the part of the entire building industry. Not only because of Mr. Kohler's position as head of this bureau, which will undertake a national campaign to arouse interest in home improvement, but because four of the nine members then selected for the executive board were men connected with the plumbing and heating industry, you will realize that our industry is leading the movement.

These things are all significant as indicating that we face a great opportunity.

THE MARKET

YOU are familiar, no doubt, with the figures set up by the survey undertaken by the General Federation of Women's Clubs. These figures "Domestic Engineering" checked by surveys of its own in 34 typical cities, and found them substantially correct. Here is what the figures show:

16.1 per cent of American homes have no kitchen sink.
17.8 per cent have no water closet.
31.7 per cent have no bathtub.
28.7 per cent have no lavatory.
71.7 per cent have no laundry trays.

This means that:

3,522,000 homes have no kitchen sink.
3,916,000 homes have no water closet.
6,974,000 homes have no bathtub.
6,314,000 homes have no lavatories.
15,774,000 homes have no laundry trays.

What is that market worth, in dollars and cents, to the plumbing industry? We have taken the average prices of the various fixtures, as quoted by the department of commerce. These figures, it must be remembered, represent only the selling cost at the factory. The potential value of the home modernizing market for plumbing is:

$ 79,456,320 worth of kitchen sinks
69,039,080 worth of water closets
201,827,560 worth of bathtubs
92,689,520 worth of lavatories
183,924,840 worth of laundry trays

or a total of $626,937,320 worth of plumbing fixtures needed to give these American homes the five fixtures necessary to any home if it is to be considered modern. Notice this, that in a building year with $6,000,000,000 worth of work going up, $567,000,000 of that six billion is for plumbing. In just this one branch of new business from old homes there is a market bigger than the biggest years of building we have ever had. Bear in mind, too, that the $626,000,000 does not represent the total of this phase of the market. You have still to add the cost of pipe and fittings, labor, overhead and profit.

The other phase of the remodeling market—the replacement of old fixtures, can only be estimated. But its extent may be judged in this way: 31.7 per cent of American homes have no bathtub. We take it that this means that in the 68.3 per cent of homes which do have bathtubs, the other fixtures are present—at least the four fixtures for bathroom and kitchen.

In order to be conservative, we will take the number of homes in the United States in 1910—surely in eighteen years we may consider that at least one fixture will require replacement, particularly in view of the great advances in design in that time. Applying the 68.3 per cent to the number of homes in 1910—18,354,453 (we'll say 18,000,000 for convenience)—we have 12,495,900 homes in which it ought to be possible to replace one old fixture. The average cost of the five fixtures enumerated was a little over nineteen dollars. The potential market here is $237,422,100, to replace one fixture in homes of the 1910 vintage.

Now let's look at the heating market. A Literary Digest survey of thirty-six cities says that 46.9 per cent of the homes are heated by furnaces and 21.2 by coal. That is, a total of 68.1 per cent of these American homes may be considered prospects for radiator heat. Another figure says that 51.3 per cent of American homes are heated other than by radiator. Let us take this last figure as being more conservative. It means that 11,285,000 homes may be considered as prospects for radiator heat. Taking $500 as the average cost of a residential heating plant—that's conservative enough—it would need $5,643,000,000 worth of heating products to put those homes on a sensible heating basis.

But suppose that we agree to be almost radically conservative. In two typical cities for one year it was found that only 4 per cent of the heating jobs were radiator installations. Suppose that we can only consider that 4 per cent of these homes are indicated as prospects. We still have a market of $225,720,000 worth of heating waiting to be sold.

We have indicated now the potential plumbing and heating remodeling market as follows:

To supply homes lacking fixtures.....	$ 626,837,320
To replace one fixture in every home existing in 1910.....	237,422,100

To supply radiator heat to 4 per cent of homes otherwise heated..... 225,720,000

Or a total of.....$1,090,079,420

We believe those figures to be conservative. We have waived pipe fittings in the first two classes and have cut our percentage to almost nothing in the heating market.

Remember this, too. Nothing has been said about specialties. No one knows how many of these homes now existing have not been equipped with such things as water heaters, and all the other conveniences of that type which are today marketed through the plumbing and heating contractor. Possible sales here would swell that potential market to substantially greater proportions.

THE MONEY IS THERE

THE MARKET, therefore, is there, awaiting development. Its proportions should satisfy the appetite for volume. Is the money there—has the public the money to expend on modernizing their homes? Savings today, gentlemen, stand at $26,091,000,000, an increase of 210 per cent since 1912. I have just indicated to you a market of one billion dollars awaiting development. I think this is a fair way of answering the question, Is the money there to spend? 45.6 per cent of the homes in America are owned by the people living in them. We may consider the home owner as a thrifty person. 45.6 per cent, therefore, of that twenty-six billions in savings may be assigned to him. There is, therefore $11,897,496,000 standing to his account in the savings banks of the country, beside which the billion dollar plumbing and heating remodeling bill is a mere bagatelle.

You know the importance of the small security holder these days. A recent public utility issue was floated. 71 per cent of it was taken up by wage earners. This has a direct bearing on income. Public utility earnings for 1927 were almost 50 per cent better than for 1926. This is one of the reasons why the purchasing power of the American wage earner is 66 2/3 per cent greater than in in the leading European country. At last hearing, cost of living stands at 164 and wage index at 213. There is, therefore, no doubt that the money is there to pay for the modernizing of the American home.

THE CONTRACTOR

I HAVE tried to proceed logically, gentlemen, to this point. The public is ready for our message of home modernizing; the industry is more conscious than it has ever been before of the greater sales possibilities if it will pursue sound merchandising policies; the market is there in ample proportion, and on a non-competitive basis, and the money is there to pay for the products and services of our industry.

One question alone remains to be answered. It is in your mind; it has been in ours. Is the plumbing and heating contractor capable of selling that market? I am not going to answer that question directly. As Marc Antony said of Caesar, I may say of the plumbing and heating contractor: "I come not to praise him." Equally, I do not come to bury him. He is very much alive, if the facts I want to quote you, upon which you may base your own conclusions, have any weight.

You know, when the merchandising idea was taken up by our industry, we all began to preach to and at the plumbing and heating contractor. I sometimes wonder if we haven't put ourselves in the position of the little boy in the story which sets forth that the boy's mother com-

(Continued on Page 66)

Professor Richard G. Tyler

Prof. R. G. Tyler

From an educational standpoint, the plumbing industry has no better friend outside its own ranks than Professor Richard G. Tyler, whose photograph we show.

He is at the head of the Department of Sanitary Engineering of Massachusetts Institute of Technology, at Cambridge, Mass. This is an institution which stands in the front ranks of our engineering institutions. While going into the most scientific investigations, this institution nevertheless has not forgotten the interests of craftsmen, and each year invites the membership of at least a dozen trades organizations of New England to enjoy the wonderful benefits of a short course of lectures delivered by members of the institute faculty.

One of the most successful of these conferences is that which has been offered to our own industry, and a very large share of the success of the two conferences of 1927 and 1928, each of which was attended by something like 500 men, is to be attributed to Prof. Tyler. He has entered heart and soul into this work, and has endeared himself to hundreds of the fraternity in New England.

Prof. Tyler is fitted to his work not only by training, but for many years was associated with municipal engineering undertakings in the Southwest. The practical experiences of this part of his engineering career, combine with the more theoretical work of his present position, to make his opinion on technical matters concerning our own industry of unusual weight.

We like to recall some of the things Professor Tyler has said at these conferences. In opening the first conference he gave his own thought concerning the work, in these words—"To get our heads together, to unite theory on the one hand and practice on the other, is the purpose of this conference."

At another point in one of the conferences, he brought out the point that "For the most part, the plumbing trade has grown up through practice, with a rather limited knowledge of fundamentals, and the purpose of these conferences is to try to present the point of view of the research man, realizing, however, that all of his theories cannot be put into practice. The idea back of it all is to use the equipment of a great institution for the greatest good to the greatest number of people."

Another statement coming from Professor Tyler is to the effect that "Since 1924, when the 'Hoover' report was first published, more real thinking has been done by the plumbing trade than ever before. The reason for this is to be found in the fact that the 'Hoover' investigation unearthed some of the superstitions of the plumbing trade, proved them unnecessary and found better methods of less cost to take their places. The original idea was that every fixture should be vented, but no longer can we deny that some fixtures do not need venting. We must now know definitely what is going on in the plumbing system."

These statements reflect truthfully the intimate knowledge Professor Tyler has of the general status of plumbing, and the clear view he has of the relationship between the theoretical and practical.

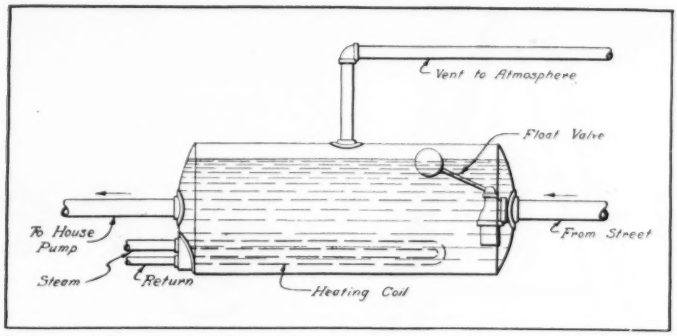


Fig. 1.—Method of deaeration

Preventing Corrosion
by Water Treatment, Deaeration, Deactivation

By H. T. HALL

WHAT is the annual cost of corrosion in the United States? Of course no one knows accurately, but it has been estimated that corrosion of iron and steel alone in one year requires the replacement of materials valued at the almost unbelievable figure of five hundred million dollars. This is merely the cost of material, to which must be added the labor of removal, the labor of replacement and the patching and repairing of the portion of the building in which the trouble occurs. In many cases the damage to the construction will be several times the cost of the material replaced, so that it may be fair to add another thousand million for labor and construction repairs occasioned by corrosion, a billion and a half of dollars annually to combat the tendency to carry on the natural chemical processes which occur when ferrous metals are exposed to air and moisture.

CORROSION OR RUST

THE COMMON term for corrosion, when applied to iron or steel, is rust, and rust is defined as "the reddish coating, essentially ferric hydroxide, Fe $(OH)_3$, formed on iron or steel when exposed to moist air." Of course there is a good deal more to the matter than is given in this definition, but for all practical purposes it may be said that corrosion is plain rust, and, in spite of its commonness, is a very difficult matter to remedy.

Just what causes rust? And what prevents it? Is it water, air or chemicals, or a combination of any or all of these? In the first place, there has always been a distinction in the mind of the writer between "rust" and "corrosion," the word rust seeming to convey the meaning of corrosion caused by water or damp air, and corrosion the meaning of disintegration by chemical means such as by acids, salt, etc. And yet corrosion is commonly applied to the eating away of steel and iron when only damp air or water is present. Yet, if a few drops of acid were spilled on a pipe and ultimately ate through the metal, it would be right to say the acid had corroded the metal, but hardly correct to say the acid had "rusted" the metal.

On the other hand, a few drops of water falling on a pipe continuously might cause it to rust out, but it doesn't seem quite as correct to say the water corroded out the pipe. Nevertheless, the results are the same because the pipe will have to be replaced and that is what really counts.

SOME PECULIARITIES OF CORROSION

AMONG a few of the most important causes of corrosion might be mentioned moisture (which must always be present), air, heat, acids, electrical action, salt and sulphur. One of the peculiarities of corrosion seems to be that a pipe line constantly full of water or steam does not rust as rapidly as one alternately wet and dry. For example, take a boiler blow-off line, which rusts out much more rapidly than the boiler feed main or the steam main. Steel reinforcing rods embedded in concrete last indefinitely, even under water, although the concrete is far from being water proof. The same steel bars, sticking out of the top of the concrete and exposed to the weather, are rusted off in a short time.

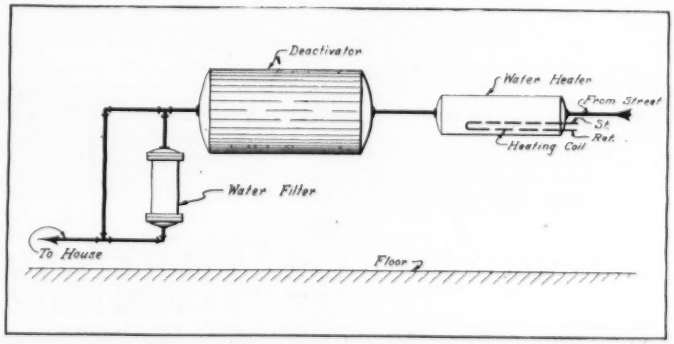


Fig. 2.—Method of deactivation

Piping laid in cinder concrete will be eaten through in short time and from the outside by the sulphur gases generated by the cinders. Hot water piping (carrying the same city water as the adjacent cold water pipe) will rust out in a much shorter time than the cold water pipe, but uncovered cold water pipe will rust much more rapidly on the

A great has been

This improvement, "Standard" Acid-Resisting Enamel, concerns you vitally. It offers opportunities for greater sales and a better business reputation for you. It brings an increased satisfaction in their fixtures for your customers.

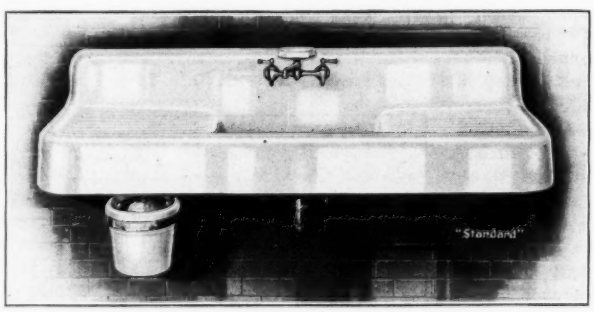
Those who have installed sinks with "Standard" Acid-Resisting Enamel, after a year of constant use express in enthusiastic terms their unqualified endorsement of all its claims.

There are numerous opportunities in your locality for sink replacement business. Sell these customers Acid-Resisting enameled sinks, and soon many of them will want this superior material in their bathrooms as well.

And the opportunities for replacing baths and enameled lavatories with new "Standard" Acid-Resisting fixtures are even greater than for sinks.

This new enamel is ideal for the bathroom fixtures. In addition to being unharmed by fruit

All enameled "Standard" Plumbing Fixtures, whether in white, black or any one of several beautiful colors, are available in the new Acid-Resisting Enamel.



Fruit juices and the acids found in vegetables and foods cannot roughen or discolor the beauty of the "Standard" "Three 8's" Sink made of Acid-Resisting Enamel.

"Standard" PLUMBING FIXTURES

improvement made in enamel

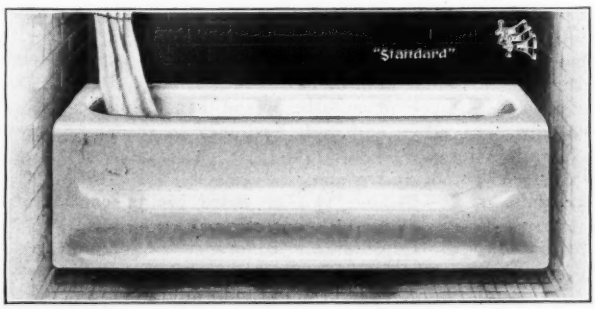
and vegetable acids, "Standard" Acid-Resisting Enamel is a ***positive*** resistant to muriatic acid, tile setters' acid, iodine, mercurochrome, medicines and such materials—and to cleansers and minerals in the water. It keeps its bright beauty indefinitely. It can be quickly cleaned with soap and water.

Here is a new product which can become a leading profit-maker for you. Many of your customers know of this improvement and will demand it. Others will be found just as desirous of installing "Standard" Acid-Resisting enameled fixtures in their new or remodeled homes, once you have explained its features to them. All will recognize its greater value for better preserving the bright gleaming original beauty of the fixtures.

The trade mark "Standard" A-R identifies all fixtures made of "Standard" Acid-Resisting Enamel.

Standard Sanitary Mfg. Co.
PITTSBURGH

The Laton Lavatory, one of the most popular "Standard" lavatories, when made with Acid-Resisting Enamel will always retain its glistening beauty and be easy to keep clean.



Tile-setters' Acids cannot mar the beauty of this Pembroke or any other "Standard" Bath made with Acid-Resisting Enamel.

"Standard" PLUMBING FIXTURES

outside, due to sweating, than hot water pipe will rust.

Various methods have been devised to relieve pipes of corrosion. Two of the most common means are the protection of the surface from the action of air and water by means of some type of coating. In steel pipe this becomes a coating of zinc and the pipe is said to be "galvanized," while in cast iron lines the coating is of pitch, tar, or some form of paint.

Hot and cold water pipes were first galvanized to prevent the discoloration produced in the water by the use of black iron. Owing to this rather fortunate circumstance the practice of using galvanized water pipe extends all over the country and much grief is thus saved.

On heating systems the matter of corrosion does not, in most cases, seem to be a serious one. In vacuum systems, where the air is constantly exhausted by a vacuum pump, the corrosion is slight.

WATER TREATMENT—DEAERATION—DEACTIVATION

THERE are three distinct methods of treatment which have been developed for the protecting of pipe systems against corrosion. The first may be termed "water treatment," although all the methods are really treatment of the water. In the "water treatment" method a chemical is added to the water which relieves the water of its corrosive character. Among such chemicals are soda, boiler compounds, solvents, and so on.

The second method proceeds on the basis of deaerating the water before it enters the piping system, thus eliminating the air ordinarily carried in raw water. This is usually accomplished by heating the water in a vented tank to near its boiling point, causing it to give up its air and also to precipitate its impurities before entering the boiler or piping system. (See Fig. 1.) A common and well known example of this is the ordinary open feed water heater such as is used to treat the feed water used as make-up in high pressure steam plants.

A third method of treatment is known as deactivation, in which a deactivator is used and the rusting ability of the water is purposely given a material on which to work and use up its corrosive energy. The basic idea in this process is to pass the water through a cylinder filled with sheet iron or expanded metal or any other arrangement may be used in which a large metallic surface is exposed to the action of the water, and in which chemical reaction takes place in the deactivator until the water is practically neutralized.

In Fig. 2 is illustrated a diagrammatic arrangement of a deactivator installation, and it will be noted that the water is first heated so as to bring its corrosive activity up to the highest point, is then passed through the deactivator, consisting of a closed steel tank filled with thin steel lath, and is then taken through a filter into the piping system or boiler. The filters prevent particles of steel lath, rust and other impurities from entering the piping system and, when used with a service hot water system it is only necessary to heat the water to the temperature required for service before putting it through the house system.

Experiments show that corrosion practically ceases with the elimination of free air from the water, so that as soon as this has been accomplished on the neutralizing metal in the deactivator there is little danger beyond this point. Of course the deactivator material must be replaced from time to time, as it is eaten up by the action of the water, but this is a comparatively inexpensive item compared with the tearing out and replacing of the piping system, damage from leaks and inconvenience which would otherwise result.

The Heating and Piping Contractor and the Art of Welding

By John H. Zink*

THE ART of pipe welding, as applied to our heating and piping industry, is admitted to be comparatively new, and I am compelled to make the further admission that up until the present time, in my opinion at least, those of us who have recognized and accepted welding as the new and better way to install piping, have created our own standard practice, in many instances varying decidedly in comparison, and apparently without regard to uniform practice or standardization. This lack of co-ordination within our own ranks, plus misrepresentation, unintentional perhaps, but misrepresentation nevertheless, as to costs, experience, equipment, liability, etc., both on the part of our own welding contractors and the equipment manufacturers as well, have caused hesitancy on the part of many of our piping contractors in accepting welding, and a natural consequence follows in that the architect and consulting engineer refuses to accept an apparent uncertainty, and we can't much blame them.

My company is a strong advocate of welding, and we much prefer to have welding stabilized so that the architect and consulting engineer will require it as a part of their original specification rather than ask us to figure on a flanged or screw fitting installation and making it necessary, as the successful bidder, to sell him welding afterwards. This reticence on the part of the architect and consulting engineer has given us considerable concern especially as more than fifty per cent (50%) of our high and low pressure installations during the past two years have been welded, and less than five per cent (5%) of our total welded installations were specified as an original part of our specifications. I have talked with a number of architects and consulting engineers on this question, and their hesitancy to accept and specify welding may be attributed, in part at least, to the following pertinent reasons:

1.—Seldom two or more piping contractors agree as to the scope of work to be included.
2.—Considerable difference of opinion as to the merits of the "butt" weld and "V" type weld.
3.—Necessity of using forged steel flanges instead of cast iron.
4.—Inability to state with confidence whether the specification for low pressure installations is applicable to high pressure installations.
5.—Is welding cheaper?
6.—Should the welding be done by the oxy-acetylene or electric process.

*Paper read at the recent convention of Heating and Piping Contractors National Association. Mr. Zink is vice president and general manager of The Heat & Power Corporation in Baltimore, Md.

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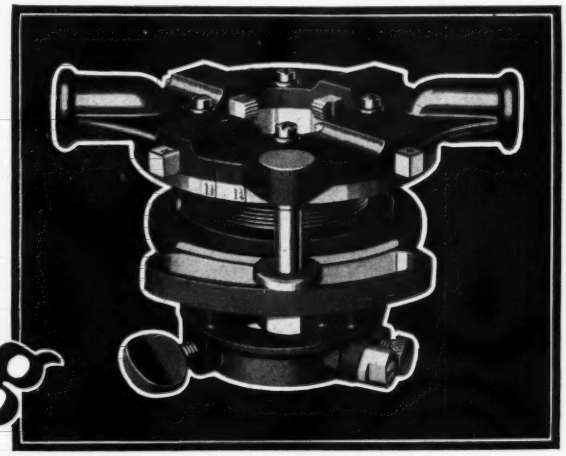

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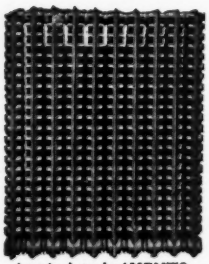

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I have always felt and still feel that my company has a definite and truthful answer to these questions. And yet I find in talking with other contractors that many of us are at variance as to uniform practice. If this be true, how can we expect the architect and consulting engineer to view the situation differently than so aptly expressed to me recently:

"If you contractors can't agree on what constitutes a welding installation, how do you expect us consulting engineers to specify it intelligently?"

Permit me to illustrate:

I have knowledge of a typical high pressure boiler header installation from which high and low pressure branch mains were to run. The consulting engineer specified welding would be permitted according to "standard practice," with the added precaution that each bidder must specify in detail in his proposal the piping he intended to weld. My company was one of six bidders with this result:

Only two of the bidders agreed to weld all piping and weld flanges to the piping.

Four bidders intended to weld the pipe and branch outlet connections but proposed to use screw cast iron flanges on valves and where additional flanges were specified for disconnecting purposes.

Five of the bidders insisted on the "butt weld" and we stood alone for the "V" type weld.

It so happened that the consulting engineer in this instance had before him certified tests of six pipe butt welds, none of them equal to sixty per cent (60%) of the strength of the pipe, and an equal number of "V" type pipe welds, all of them stronger than the pipe itself. He promptly overruled two objections to the "V" type weld as applied to cut or short lengths. The contractors stated their pipe was beveled at the mill and frankly admitted they were not equipped to bevel short lengths in the field. This work is easily done by the use of a power drive and die-head equipped with special dies which cut and bevel the pipe in one operation.

We use forged steel flanges on both low and high pressure piping to permit welding flanged connections. Some of you may insist upon this method as being more expensive and I will agree with you. The consulting engineer does not desire you to weld the piping as a whole and then have you make up flanged connections with screwed flanges, for the reason that you thereby defeat the very purpose for which welding is permitted, i.e., the elimination of threaded connection.

I am not in favor, nor can I see any good reason, for having a different method for welding low pressure piping as against high pressure piping, although the consulting engineer is undoubtedly more exacting on high pressure piping by requiring, in many cases, a practical examination for the welding operator, prior to permitting him to do the particular job, and generally requiring the welding operator to have from one to two years actual pipe welding experience.

The question of the cheapness of welding, as against the use of screw and flanged fittings, is decidedly an open question. My personal opinion is that welding as a rule is not cheaper, and in no instance do we recommend it as being cheaper. Our policy is to sell welding on the basis of reduced cost of maintenance and repair, lighter weight, strength, permanency and efficiency. I have succeeded in getting permission to weld a piping installation in a number of instances where I knew beforehand it would be more expensive. The difference in cost, however, was not material, and we were glad to pay for the opportunity to prove the merits of welding to the architect and consulting engineer. We did not, and do not, hesitate to thus contribute to those whose co-operation we must have in order to be successful, knowing that it has invaluable educational value and will bring ample return in time.

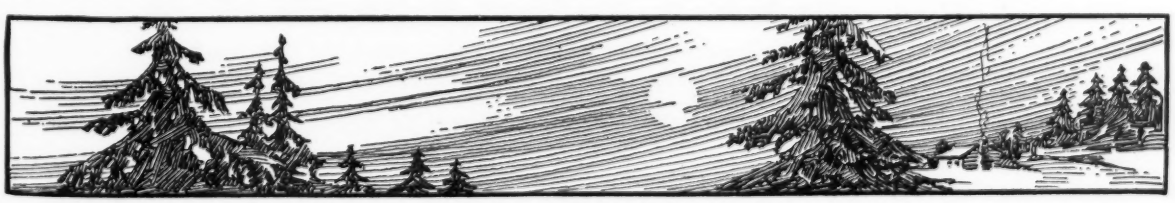
Another problem for us to consider is the value of the oxy-acetylene weld as against the electric weld. Many of us are at odds on this question, and it should receive careful consideration. There may be room for both, but at the moment we use the oxy-acetylene process exclusively.

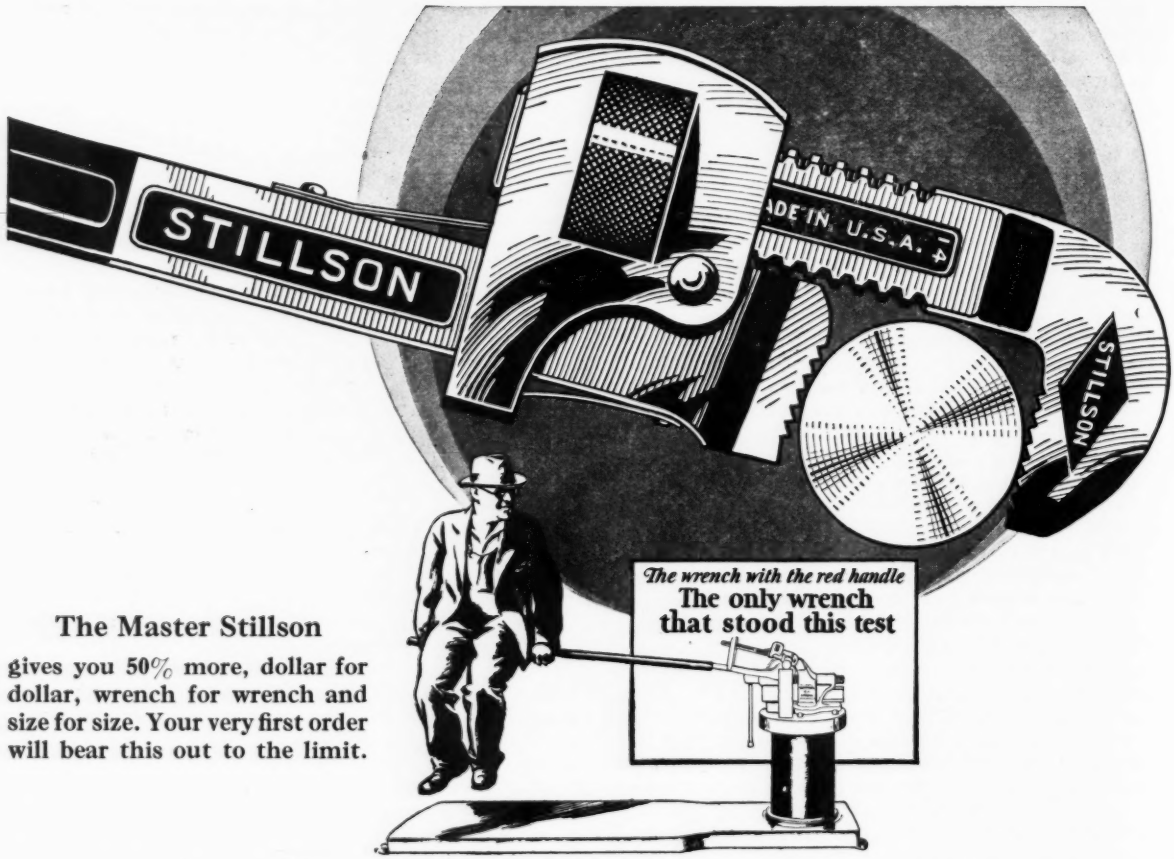
The question of the cost of welding is wide open to opinion and criticism. We differ in method and must necessarily differ in cost. Our usual trump card on "cheapness" is to show the comparative cost of placing a cast iron flanged tee in a main pipe run, as against the more or less operation of welding in a nipple. This saving is shown to be in most instances close to one hundred per cent (100%). This is misleading because the admitted saving on this particular operation is in no sense representative of the cost of welding the total installation. For this reason, I hesitate in broadcasting my costs, or placing them in comparison until such time as we are all doing our welding by some accepted uniform practice.

From the foregoing it is but reasonable to assume that we in the piping industry must begin at once to correct the present chaos; and we must create and adopt standards both as to specification and materials. I have personal knowledge that our equipment manufacturers and material manufacturers are very anxious and willing to give us their co-operation. They realize the necessity for standardization, and the architect and consulting engineers most certainly desire their welding specification to be supported by a uniform practice adopted by our national association and all its members.

I am unable to see any good reason why my company should make our welding installations any different from any other company, nor can I see any good reason why our architects and consulting engineers should write a different welding specification than do the consulting engineers of any other city.

I am hopeful that through the medium of this convention our national officers will appoint at the proper time a permanent welding committee whose duty, in part, shall be the preparation of intelligent and acceptable specifications, and to whom shall be referred for decision all questions of controversy, etc., concerning our national association and its members.





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Analysis of the Work of A. S. H. V. E. at its Mid-Summer Meeting

LIKE a river with many tributaries, the work of the American Society of Heating and Ventilating Engineers reaches out and touches many industries and interests of many different kinds. Its dust determinations are of particular interest to factories and departments of health throughout the land. Its investigations of the uses of fuels are studied by producers of coal, oil and gas, as well as by makers of devices for burning these fuels. Their tests of heat loss from buildings are obtained by lumber concerns, makers of insulation, Portland cement, tile and building materials of infinite variety. Their methods for testing heating and ventilating devices are watched carefully by hundreds of manufacturers of these devices. Owners of hospitals, theaters, apartment houses, office buildings and the better class of homes, are seeking the information provided by the A. S. H. V. E. relative to producing indoor weather that is pleasing and healthful. These are merely suggestive of the wide interest in the work of the A. S. H. V. E. outside of its own field. This explains why the thirty-fourth semi-annual meeting of this society held at West Baden, Ind., June 26, 27, 28 and 29, was attended by many who were not actually members of the society.

The purpose of this meeting, which was reported in part in the issue of July 7, was to study and discuss these and similar subjects. This is a continuation of that report.

EFFECT OF FRAME CALKING AND STORM WINDOWS ON INFILTRATION AROUND AND THROUGH WINDOWS

THE BUILDERS of the earlier types of frame dwellings did not pay much attention to the conservation of warmth. Fuel was plenty. It grew in abundance not far away. Even the old log house was warmer than the later frame dwelling. But now when fuel is not so plentiful, when human beings dig it from the earth for fuel instead of cutting it from the earth's surface, an increasing amount of attention is paid to heat loss from homes. Evidently the heat loss is terrific. The average home leaks like a sieve. Outside air finds its way around window frames and sash, through plaster, between bricks, between boards, through cracks and crannies innumerable. So the matter of air leakage or infiltration around windows is important.

Many studies of air leakage or infiltration around windows have been made by the A. S. H. V. E. and then with their usual thoroughness, this society proposed to find out the effect of calking of cracks around window frames and the effect of storm windows. This investigation, which has been conducted at the University of Wisconsin during the past year, was reported on at this meeting by W. M. Richtmann and C. Braatz, instructors in steam and gas engineering at the University of Wisconsin. An apparatus was constructed similar to the ones described in the report of the paper on infiltration. That apparatus is now in the research laboratory at Pittsburgh.

A tight box is placed on each side of the walls in which the window is encased. The air is blown into one box and out from the other. The difference in pressures in the two boxes indicates the amount of leakage. In this way walls have been tested, also walls after the windows had been inserted, etc.

It was found that plastering around the window frame reduces the leakage considerably and that all leakage might be stopped by calking the window frame in the brick wall during construction or later and that the expense of this was slight.

Typical of the information provided is that shown in Fig. 1 which shows infiltration through the sash perimeter of the window. The line A represents the window with one-eighth inch crack and one-eighth inch clearance, line B for the window fitted with 5/64-inch crack and 1/32-inch clearance, and line C for the average window. Similar charts gave additional information of this sort.

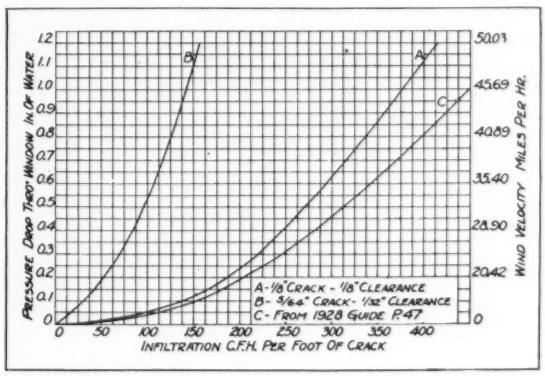

Fig. 1.—Infiltration through sash perimeter of windows

The conclusions reached were:

The infiltration through the crack between the brick wall and window frame is a very important factor in calculating the infiltration into a room. However, this source of leakage can be practically eliminated by the application of some type of calking compound to the crack.

The application of storm sash does not materially decrease the infiltration of a tight fitting window, but does give a large saving if the crack and clearance of the window is large. The application of a wool strip between the frame and storm sash reduced the infiltration appreciably.

The storm sash applied by means of the four turn buttons reduced the infiltration much more than those applied by means of the hook and eye suspension arrangement. The infiltration through the crack between the brick wall and window frame for a plastered wall is about 40 per cent of that through the same crack on a plain wall. This leakage may be as great as the leakage through the sash perimeter of the window. Data on runs which duplicate previous tests made at the Research Laboratory check closely with the data from that laboratory.

AIR LEAKAGE THROUGH A PIVOTED METAL WINDOW

A TEST of the leakage of windows was also conducted in 1927 under unusual circumstances. The Power Show was being held in New York City. The American Society of Heating and Ventilating Engineers had an

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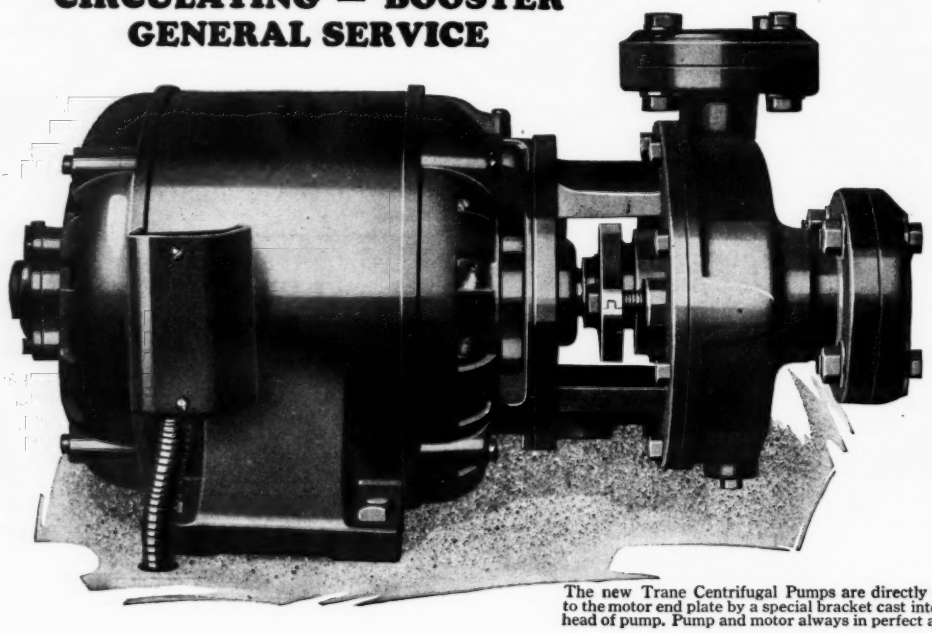
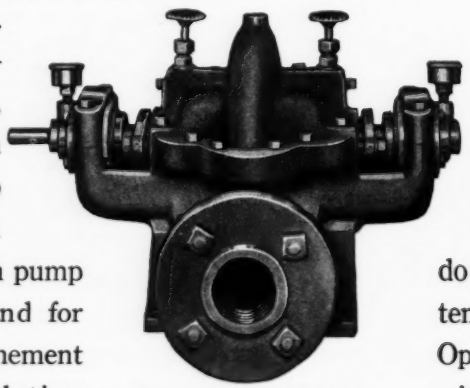


The new Trane Centrifugal Pumps are directly connected to the motor end plate by a special bracket cast integral with head of pump. Pump and motor always in perfect alignment.

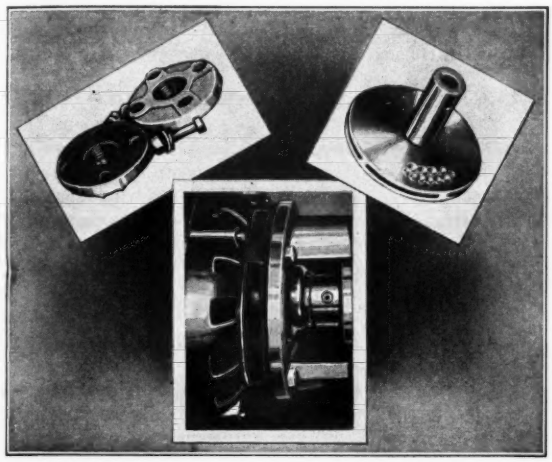
A Complete New Line of Centrifugal Pumps! Increased Capacities! Higher Efficiency! More Compact Units! Easier to Install! Completely Assembled! Nothing Extra to Buy! One-Man Installation! All of these features and many others are built into the new line of Trane Centrifugals for boiler feed, condensation, circulating, booster and general service work. Quiet in operation. Comparatively light in weight, yet sturdy in construction to enable them to stand up as they should in service. Fifteen years' experience in pump building is the background for these new units. Every refinement that will make the installation easier and increase the service of the pump has been included. Higher efficiencies have been obtained in these new units than were ever before secured in Centrifugal Pump history. On the smaller pumps three-quarters horsepower motors do work that has required one or one and one-half horsepower in the past. On the larger pumps, seven and one-half horsepower motors do work that has always required ten. Capacities are surprising. Operation costs are lower. And with all these features the prices are still low. Send for new bulletins containing complete information on this improved line of pumps at once.



The new Trane horizontal split shell centrifugal pump for booster, circulating and boiler feed service

This is No. 2 of a series of three announcements on new Trane equipment. Announcement No. 1, on the new Under-Window Type Concealed Heater appeared in June 23rd issue of this paper. The Third will appear in an early issue.

Simple Construction

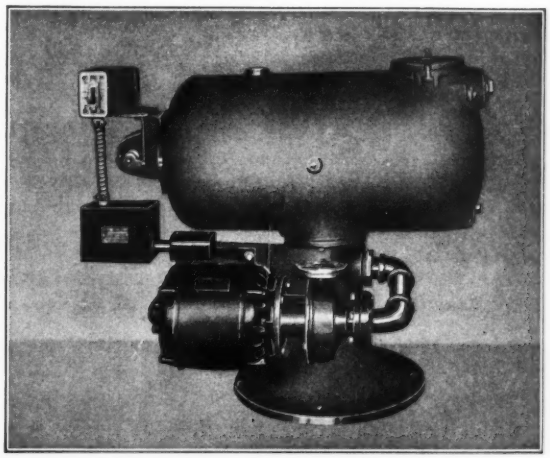


Upper Left—Companion Flanges for Inlet and Outlet furnished as part of pump. Upper Right—Trane pump impellers are perfectly balanced to eliminate vibration. Center—Close up view showing method of connecting pump with motor.

The new Trane Pumps are designed for simplicity of installation and maintenance and for long life. Every feature that would simplify these pumps and yet improve them has been incorporated. Impellers are carefully balanced to eliminate vibration. All bearing housings are fitted with double row of New Departure ball bearings. Pumps are bronze fitted throughout to prevent corrosion.

Shafts are of high carbon steel and oversize. Stuffing boxes have split gland — repacking easy. Also fitted with recess to collect leakage. No water can get to bearings. Companion flanges are furnished for both inlet and outlet. A special end plate on the motor is connected directly to the pump suspension bracket which is cast integrally with the pump head. Pump and motor always in alignment. No couplings. Pump impeller direct connected to motor shaft. Easy to clean—take out eight screws and the head comes off.

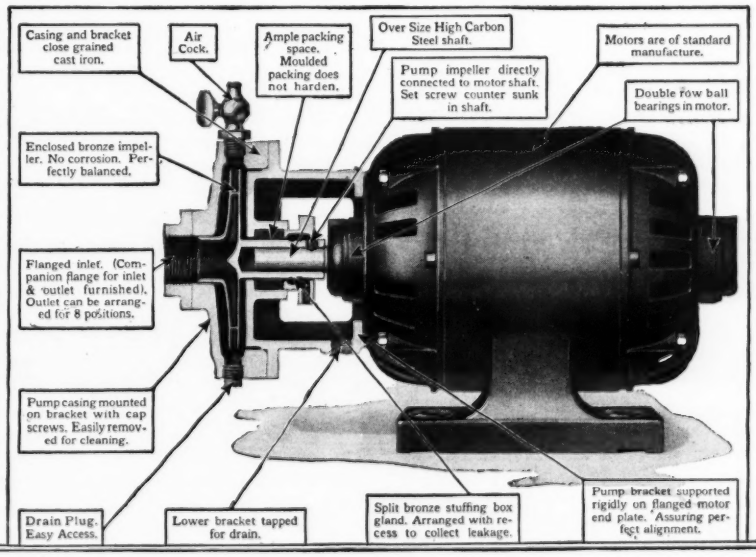
Ready to Install



Trane condensation pumps are furnished completely assembled and wired for installation. Pump, Motor, Receiver, Switch Box, and Motor Protective Equipment mounted as a single unit on one base.

The new line of Trane Centrifugals when used as condensation pumps are furnished completely assembled, ready to hook up.

The receiver, pump, motor, switch box, and motor protective equipment are all mounted as a single unit. Nothing extra to buy. Everything is furnished including flanges on suction and discharge.


Casing and bracket close grained cast iron.
Air Cock.
Ample packing space. Moulded packing does not harden.
Over Size High Carbon Steel shaft.
Motors are of standard manufacture.
Pump impeller directly connected to motor shaft. Set screw counter sunk in shaft.
Double row ball bearings in motor.
Enclosed bronze impeller. No corrosion. Perfectly balanced.
Flanged inlet. (Companion flange for inlet & outlet furnished). Outlet can be arranged for 8 positions.
Pump casing mounted on bracket with cap screws. Easily removed for cleaning.
Drain Plug. Easy Access.
Lower bracket tapped for drain.
Split bronze stuffing box gland. Arranged with recess to collect leakage.
Pump bracket supported rigidly on flanged motor end plate. Assuring perfect alignment.

One man makes the entire installation. Two piping connections are all that is required. Outfit is completely wired to meet national code requirements. Switch box and motor protective device furnished as standard equipment.

The new Trane Condensation Pump Units are available for capacities up to 500 gallons per minute and for pressures up to 225 pounds.

Cutaway view of the new Trane Centrifugal Note the simple construction.

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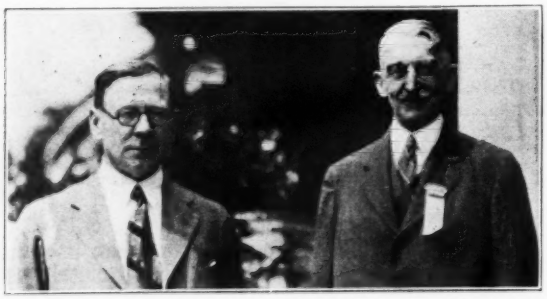
exhibit at the show. It happened that it was convenient to set up in the exhibit booth, an apparatus for testing the window back of the booth. This was a pivoted metal window. The results were presented in a paper by F. C. Houghten, director, and M. E. Connell, research physicist of the A. S. H. V. E. laboratory.

After the tests were completed, tables were compiled showing the amount of radiation that would be necessary to take care of the heat loss due to the infiltration of such a window. The data compiled would indicate that the application of weather stripping would permit a considerably lower first cost in the heating equipment as well as in the cost of heating thereafter.

WEATHER TIGHTNESS OF ROLLED STEEL WINDOWS

INFILTRATION of air through cracks between windows and window frames has been a subject for discussion in the American Society of Heating and Ventilating Engineers for many years. It was discussed in the society at least as long ago as 1916.

The paper for J. E. Emswiler, professor of mechanical engineering, University of Michigan, and W. C. Randall,



Homer R. Linn, chief engineer, American Radiator Co. at Chicago, and Charles F. Eveleth, C. W. Colby & Co., Cleveland, Ohio

chief engineer of the Detroit Steel Products Company, had for its purpose the presentation of additional information on infiltration of air through windows.

In determining the amount of infiltration a novel method is used. A window with its frame is set up for testing. A box encloses the window on one side and another box encloses it from the other side. Each box is air tight with the exception of the opening for the entering air on one side and the opening through which the air is admitted on the other side. On the side that corresponds to outdoors, the box is equipped with a fan which forces the air against the window. Being confined in the box the pressure causes the air to pass through the cracks of the window and into the box corresponding to the indoors side of the window to the central opening in the "indoor" box and out into the laboratory. The amount of infiltration is computed by the difference in pressure between the air in the box on the indoor side and the air in the box on the outdoor side.

There is a great deal of difference in the infiltration through different kinds of windows as brought out by this paper. The range of difference given was between 1,500 to 6,350 feet per hour.

It is learned from the paper that air often acts in unsuspected ways and if wind blows directly on the side of the building it will increase the infiltration as one would naturally suppose. However the pressure varies over the face of the building, being greater near the top. If wind strikes the building obliquely the pressure will be greatest near the corner that splits the wind. Where wind bounces off from a building, a vacuum may be created. Where wind blows parallel to the building the pressure is neutral.

There are many things to be studied in filtration through windows and the American Society of Heating and Ventilating Engineers is learning more about it from year to year. This is an important subject to the heating contractor for heat losses from infiltration are often so great that they render inadequate an otherwise well proportioned plant. The object of the paper was to show that there was no more infiltration through steel sash windows than through wooden windows.

A STUDY OF DUST DETERMINATORS

IN THE plan for cooperative research between the A.S.H.V.E. in various universities, there is the project at the University of Minnesota, of learning more about dust determinators. There has been a growing recognition of dust as a highly important factor in ventilation. It is known that many kinds of dust have very harmful effects upon human beings, but it is difficult to estimate the amount of dust in the air or to find out when the danger point is reached, so instruments that are keener than the human eye are devised for this purpose. They are called dust determinators.

It is interesting to note how the workers in the laboratory proceed in the investigation of such a problem. How the research workers went about it to prepare a code or devise a method for testing dust determinators was described in the paper by Frank B. Rowley, professor of mechanical engineering, and John Beal of the University of Minnesota. First they endeavored to mix dust with air in a uniform manner so that various dust determinators could be prepared. This required special apparatus.

Numerous tables and graphs of results were recorded and the method worked out seemed to give reasonably consistent results when taken by itself, but when the two methods are compared there are such wide variations that it would indicate that further experimental work would need to be done to check results. This will be continued at the University of Minnesota.

DEVELOPMENT OF GAS HEATING FOR HOMES

W. E. STARK is an engineer of the Bryant Heater & Mfg. Co., Cleveland, Ohio, and his paper on "Development of gas heating for homes" was listened to with interest. While gas has been used for heating buildings for many years, it is only within recent years that the domestic consumption has begun to increase rapidly, Mr. Stark stated. This may be due in part to the fact that 156 producers of manufactured gas throughout the United States are now encouraging the heating of homes by gas. In 208 communities in this country there are special rates for manufactured gas for heating. After discussing peak loads, explaining how producers of gas might double their sales by supplying gas for house heating, after describing the kinds of people who are most likely prospects for gas heating, after analyzing the operating cost of gas plants, explaining the construction of gas boilers, etc., he concludes that: "The extensive acceptance of gas as a building-heating medium waits on the following elements: economic pressure due to rising cost of heating fuels that are now cheap in first cost but that cannot be efficiently utilized; development of cheaper gasification processes and public utility commission and municipal approval of the marketing of the gas resulting therefrom; development of uses for by-products of gasification; increasing demand for unpolluted atmosphere."

(Continued on Page 43)

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A Symbol~
its meaning to the plumbing contractor

When a plumbing contractor installs an electric sump pump or hydraulic cellar drainer bearing the trade mark reproduced above, it means that—

—he will earn a fair profit

—his profit will not be dissipated in servicing

—installation is simple and can be quickly made

—reliability and operating economy have been proved.

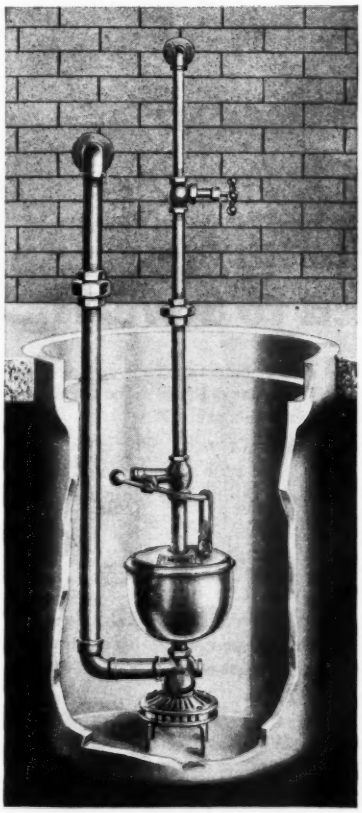
—the pump is immune to corrosion—of copper and bronze throughout.

—a financially responsible manufacturer stands squarely behind him in assuring satisfaction to his customer

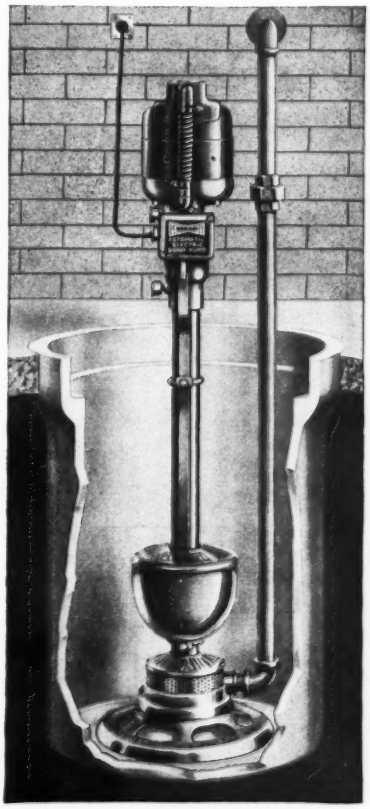
—the manufacturer has the experience, resources and research facilities to build to a purpose, not to a price

—the manufacturer is actively creating the demand by using large space in leading architectural and building publications.

Carried in stock by leading jobbers throughout the country.



Penberthy Automatic Hydraulic Cellar Drainer



Penberthy Automatic Electric Sump Pump

PENBERTHY INJECTOR COMPANY

ESTABLISHED IN 1886

DETROIT

CANADIAN PLANT WINDSOR, ONT.

There's an EXTRA PROFIT in the Make-Up!

O-B No. 40 LINE
(patented)
With Union

HOT WATER RADIATOR VALVE

Regularly furnished heavily nickel plated with trimmings highly polished.

The handwheel is made of black molded composition and gives finishing touch to a good looking valve.

Made in sizes from ½" to 2" inclusive.

The One Big Feature . . . . . Designed to Save Time

CONTRACTOR: "Say, I didn't really believe all you said about saving make-up time with those valves."

JOBBER'S SALESMAN: "Have you used them yet?"

"Sure have, and I watched that job closely. Couldn't see your argument about saving time when I bought them, but they looked like a well built product, so decided to give them a try."

"What's the verdict?"

"Well there is no doubt that we saved some time, but say, tell me just what is there about them that made this saving?"

"Several reasons. One is the heavy lugs—a spud wrench won't slip on those. Another is the combination of curved and tapered surfaces forming the union seat. That's why those unions can be made almost steam tight with your fingers....."

"Yes, I did notice that there was little or no real tugging or straining making steam tight joints."

"That's just a small part of it, there are many other reasons that account for this saving, but the one big reason is because Ohio Brass Valves are designed with your make-up problem in mind. Not content in making just a good valve, Ohio Brass Engineers feel that a big part of their job is to make it easy for you to install these valves. That's why you always save time in the make-up, when you use our Ohio Brass Valves."

Ohio Brass Company
Mansfield, Ohio
879V

Ohio Brass Co.

NEW YORK CHICAGO PHILADELPHIA PITTSBURGH ST. LOUIS ATLANTA SAN FRANCISCO CLEVELAND LOS ANGELES

PORCELAIN INSULATORS
LINE MATERIALS
RAIL BONDS
CAR EQUIPMENT
MINING MATERIALS
VALVES

OPERATING DATA ON FEDERAL BUILDINGS

THERE are 1,400 buildings under the control of the Treasury Department, Washington, D. C. Since the cost of operating all these buildings is in the hands of the Treasury Department, here was a good chance to find out something about the cost of operation of such structures.

Much information along this line was presented in the paper by the chief mechanical and electrical engineer from the office of the supervising architect of the U. S. Treasury, Nelson Thompson, Washington, D. C.

The estimated value of the mechanical equipment in these buildings is $50,000,000 and the cost of all repairs amounts to about 1 per cent annually. In round numbers the plumbing repairs amounted to $148,000 and the heating and ventilating repairs to $250,000. It was stated that one of the major expenses for repairs during the past ten years was the removal and replacing of hot water and cold water pipes.

Steam was furnished for some 51 buildings in different parts of the United States. The price paid was 87 cents per 1,000 lb. Consumption runs from 3 lb. to 7 lb. of steam per cubic foot per season.

In arriving at the monthly consumption of steam, the following tabulation is used:

October	6 per cent	February	18 per cent
November	10 per cent	March	15 per cent
December	18 per cent	April	10 per cent
January	18 per cent	May	5 per cent

Two dollars per annum per horse power is allowed for boiler room repairs. Boiler room labor averages $2.00 per ton of coal fired.

HEATING INDUSTRIAL SYSTEMS WITH WARM AIR

THE WARM air furnace industry which heretofore has confined its efforts to dwellings and small buildings, is now looking toward establishing its business in buildings of larger size. One indication is the paper presented by J. C. Miles, vice president of the Warm Air Heating Company of Cleveland, Ohio, on heating industrial buildings with warm air.

It was stated that reliable data are now available as to the efficiencies and heat transmission factors of fan furnace heating systems which operate on various fuels.

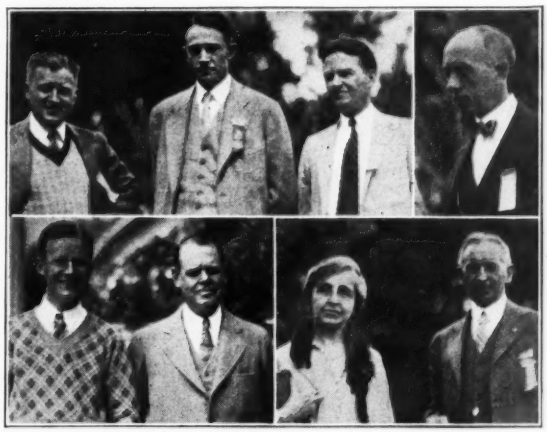
An installation in a storage garage in Cleveland was described. It was required to maintain a temperature not lower than 40 degrees. The heating system consisted of one horizontal type cast iron furnace equipped with a centrifugal, squirrel cage type fan. An automatic by-pass, louvre damper in the cold air duct between the furnace and the fan is forced to close when the fan is in operation, but opens when the fan is shut off. The damper permits an air supply in addition to that which passes through the fan. The warm air ducts have 10 outlets. It was estimated that about one-half of the time between October and April, 1925, when the tests were conducted, that there was no fire in the heater. Most of the time there was oil soaked wood and coal in the heater ready for the match in case the outdoor temperature should drop below 40 degrees. It was claimed that the fuel economy was accounted for in this way.

The paper was presented as non-technical field observations and described various conditions and applications not found in the usual industrial heating practice.

METHODS OF AIR DISTRIBUTION

VENTILATING engineers have a hard time running their ventilating ducts where they should go. If architects would co-operate with them in preparing plans for the building, it would help matters somewhat, but in many cases this is not done. If the walls had unbroken surfaces, no windows, pillars or doors to interfere with the direction of the ducts, there would be no problem, but in theatres particularly with their elaborate decorations, and with walls of unusual contour and construction, the ventilating engineer is often at his wits' end to know how to run the ducts so that they will avoid doors, windows, pillars, balconies, decorative pilasters, etc. For this reason the address by L. L. Lewis, secretary of the Carrier Engineering Corp., Newark, N. J., was particularly interesting. He cited some of the difficulties encountered in air distribution, for instance, the turbulence caused by poorly designed elbows, offset or conversion section may not only spoil an otherwise perfect outlet, but also cause unnecessary loss of pressure, and an appreciable contribution toward an objectionable, noisy system.

A number of instances were cited where arrows on blue



Top row: L. L. Lewis and R. W. Waterfill, both of Carrier Engineering Corp., Newark, N. J.; J. W. Cooper, Buffalo Forge Co., St. Louis; A. G. Sutcliffe, Ilg Electric Ventilating Co., Philadelphia. Bottom row: N. P. Fenner and F. H. Gaylord, vice president, both of Hoffman Specialty Co., Chicago; Prof. J. D. Hoffman, Purdue University, Lafayette, Ind., and Mrs. Hoffman

prints indicated that the air would go in the direction they pointed, but the air did not go that direction at all.

The conclusions reached were:

1. That the engineer should place less dependence on the arrows in front of the grille and more upon his details of the necessary deflection vane behind it.

2. The engineer should educate the architect to a more complete understanding of the danger of placing deflecting surfaces or obstructions in the path of the air leaving the outlets.

3. That much is yet to be learned about air distribution through research and experiment as a very large part of our present knowledge is in the form of personal opinion.

In the discussion of this paper it was stated that a few years ago the A. S. H. V. E. was considered to be an organization interested solely in steam heating, but that there seems to have been a change. The distribution of warm air as described in the paper was questioned, as well as the method of computing the efficiency of the plant. It was difficult for some of those present to understand how the air at the ceiling of the garage could be maintained with this equipment at a lower temperature than the air on the floor. A greater distribution of warmed air would be necessary in any other type of building. The question of ventilation was discussed, which point was not considered in the paper. While it is true that nearly seventy per cent of public garages have no

(Continued on Page 73)

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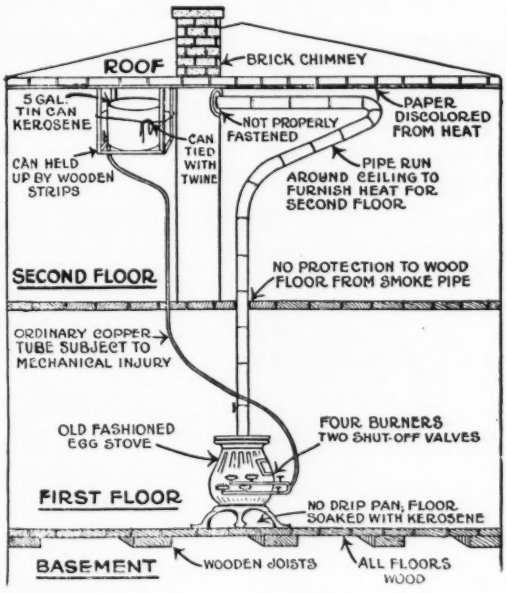
The Trend of Oil Burner Design

By C. H. CHALMERS

THE NEW literature of the Oil Heating Institute is just off the press. Advertisements of the Institute are beginning to appear in various journals and magazines, and the Institute's four booklets intended for the public are available to those who wish to answer these various advertisements that are appearing now in "Domestic Engineering" and other papers and will continue to do so during the summer and fall. These booklets give in concrete form more definite information regarding oil burners than has ever before been found in a single piece of printed matter.

The fifth annual convention and oil burner show of the American Oil Burner Association held at Chicago in the early part of April this year has passed into history after introducing to the public the latest designs of various oil burner manufacturers. The showing made at Chicago is, however, secondary in importance to the unique and interesting literature of the Oil Heating Institute. These two landmarks in the early part of 1928 are outstanding in their bearing upon the subject of this article.


ROOF
BRICK CHIMNEY
5 GAL. TIN CAN KEROSENE
CAN HELD UP BY WOODEN STRIPS
CAN TIED WITH TWINE
NOT PROPERLY FASTENED
PAPER DISCOLORED FROM HEAT
PIPE RUN AROUND CEILING TO FURNISH HEAT FOR SECOND FLOOR
SECOND FLOOR
NO PROTECTION TO WOOD FLOOR FROM SMOKE PIPE
ORDINARY COPPER TUBE SUBJECT TO MECHANICAL INJURY
OLD FASHIONED EGG STOVE
FOUR BURNERS TWO SHUT-OFF VALVES
FIRST FLOOR
NO DRIP PAN; FLOOR SOAKED WITH KEROSENE
BASEMENT
WOODEN JOISTS
ALL FLOORS WOOD

One of the freaks in the early history of oil burning

However, from the standpoint of the combustion engineer and designer of oil burning equipment, other developments than those just cited command his attention. Progress in the matter of oil burner design rests upon two foundations. One of these foundations is the experience gained in the field,—the experience that comes back to the factory from the dealer, the buying public and the user. The other foundation is that of scientific research in the laboratory. During the past decade a steady stream of field experience has come to the various builders of oil burners, and through competition in the field, and experience gained therein, they have witnessed a decided refinement in the various burners that have found public use. This field experience has not brought about rapid development and changes, but has been rather a process of attrition whereby the corners of existing designs have been rounded off and those designs whipped into the best condition possible by the various builders. These various designs, refined in the crucible of experience, have given the oil burner industry a number of very creditable burners that, during the last two years, have placed domestic oil burning on a basis that seems destined to be permanent. In other words, the foundation of a new industry has been successfully laid.

THE THREE PERIODS OF OIL BURNER RESEARCH

IN THE matter of laboratory research, I would say that the developments along those lines might be divided into three periods. The first period was the initial one during which time those first in the domestic field made burners that were capable of automatic performance, and while using principally the lighter oils, gave creditable performance, even a decade ago. There was, however, at that time, a large field of "terra incognita." Some of the literature of that early day describing how one could inspect the flame and recognize carbon monoxide gas is most amusing in the light of our present knowledge and experience.

The second period of technical advance is marked in a very outstanding way by the thesis written by C. F. Olmstead at the University of Minnesota when he took his master's degree in mechanical engineering choosing the domestic oil burner as his major theme. So far as I know that was the first scientific study of the performance and design of the domestic oil burners. It was the first real research work based on the use of oil as a fuel in small boilers. After the publication of the "Olmstead Thesis," little or nothing seemed to have been added to the technical side of the industry, but the refining process above referred to in the matter of designing and perfecting existing models went on steadily up to the middle of 1927. This second period of development was very much like the refining process to be observed a decade earlier in the perfecting of gasoline automobiles. The years 1926 and 1927 were marked by the advancement of certain quite fundamental improvements in apparatuses, among them the small high pressure oil burner pumps of the various rotary types, and the bringing out

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Copper-bearing steel—all electrically welded in one unit—no seams to crack or break — copper increases resistance of steel to corrosion.

Quick Response to Firing—
Knowlton "Watertoob" Steel Boilers

When the temperature takes a sudden drop, the Knowlton "Watertoob" Steel Boiler is quick to respond to firing so that no discomfort is experienced as is the case with old type heating plants.

Your customers are the ones who will remark the comfort-giving qualities of the Knowlton "Watertoob" Steel Boiler to you.

Let us send you full information on how to obtain Complete Heating Satisfaction for your customers.

KNOWLTON WATERTOOB STEEL BOILERS

ORR & SEMBOWER, INC.
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208 N. Clinton St., Chicago 50 Church St., New York

COMPLETE HEATING SATISFACTION

of improvements in ignition transformers whereby oil burner manufacturers are able to have an amount of energy available at spark gap away beyond previous attempts. These pieces of apparatus, coupled with the demand of the public that oil burners be designed that were quiet, have contributed to the progress of the high pressure gun type machine.

About this time along in 1927, the Oil Heating Institute engaged in the notable research work which resulted in the "Theodorsen Thesis" entitled "A Study of Performance of Oil Burners in Small Boilers Based on Some Experiments." This thesis started an investigation that supplemented and enlarged and forwarded the great work of Mr. Olmstead at the University of Minnesota. It thoroughly examined the question of losses due to incomplete combustion and various related aspects of the problem. Previous to that time flue gas analysis was made to determine carbon dioxide, carbon monoxide, and free oxygen. It apparently had not occurred to many combustion engineers that the flue gases might contain free hydrogen and various hydrocarbon gases. This remarkable study of combustion conditions in small boilers using liquid hydrocarbon as a fuel positively enlarged our field of knowledge of the subject, and to those who are familiar with that remarkable thesis, it helps to explain the obvious trends in present oil burner design.

Early in the work of the American Oil Burner Association on flue gas analysis, it was discovered that it was of little use to test for carbon monoxide in the flue gases because repeated careful tests resulted in getting not even a trace, and for a while carbon dioxide determinations were about all that interested any manufacturer. The discovery that there was something there that was permitting part of the fuel to go up the stack has opened the eyes of all thoughtful designers, and an appeal is being made to the instrument makers to provide a field instrument that will determine the carbon dioxide, the free hydrogen, and the hydrocarbon compounds that are escaping through the chimney.

Of course, from a sales standpoint based upon experience and upon the investigations of the Oil Heating Institute and the American Oil Burner Association, oil burner manufacturers are all finding that the matter of noise is a serious obstacle in the sale of oil burners. In the meantime, the suppression of the "noise of combustion" to zero has been found possible, and it will be interesting to watch the tendencies of future months as they unfold.

OIL BURNERS THAT ARE SIMPLE, EFFICIENT, BEAUTIFUL

WE ARE coming, in my judgment, to burners that are more simple in construction than any we have ever had, more beautiful in appearance than has yet appeared, and more efficient still than even our best of two years ago. At the present time domestic oil burners are available that are more efficient than ever before, are as beautiful in appearance as any apparatus in its class ever brought out, and are so quiet in operation as to be entirely acceptable for operation in the most aesthetic households. There are, of course, a lot of minor objections to oil burners in the mind of the public, but these are the result of prejudice brought about by the crude designs in the early history of a rapidly growing industry. These might be roughly classified as noise, general unreliability, oil leaks, insufficient command of the air requirements resulting in soot and dirt, and in some cases, of course, very high prices that seemed excessive for the apparatus furnished. I believe all these objections have been successfully met, and that now the oil burner industry has burners that are simple, entirely quiet, entirely reliable, and that it will be only a short time until they are so recognized by the buying public. The trend is toward simplicity, better atomization, and with all apparatus outside the boiler entirely. One cannot overlook the small, compact, vertical motor type of burner of high speed placed inside the boiler. The question arises as to whether the tendency will be toward or away from such a type. There are some advantages and disadvantages in different types of burners.

In conclusion, the outstanding things in oil burner design in the last two years have been improved oil pumps, improved ignition transformers, improved oil valves, and improved strainers. These, of course, have been incorporated in existing designs, in worked over designs, and some entirely new layouts. I believe that the standardization of fuel oils for domestic boilers will help the industry. Coupled with these improvements in the general situation, there is a better understanding of the contents of products of combustion growing out of the great contribution made by the "Theodorsen Thesis." As the industry settles down, a number of splendid designs in the way of oil burner equipment are in sight. This settling process is now well under way, and promises a more hopeful future than the industry has so far seen.

Have You Tried Bronze-Welding?

EXCAVATIONS on the site of an ancient Roman city in England have uncovered a bit of iron work that is of exceptional interest. It is a deep iron ring about 1 11/16 inches in diameter and ⅝ inch wide, dating back to at least 380 A. D. Examination has shown that this ring was fashioned from two small pieces of iron, one joint being a forge weld while the other was made with copper. This could indicate that the Romans in England not only were able to weld iron, but also knew how to join or "solder" with copper—the forerunner of modern brazing, according to "Oxy-Acetylene Tips."

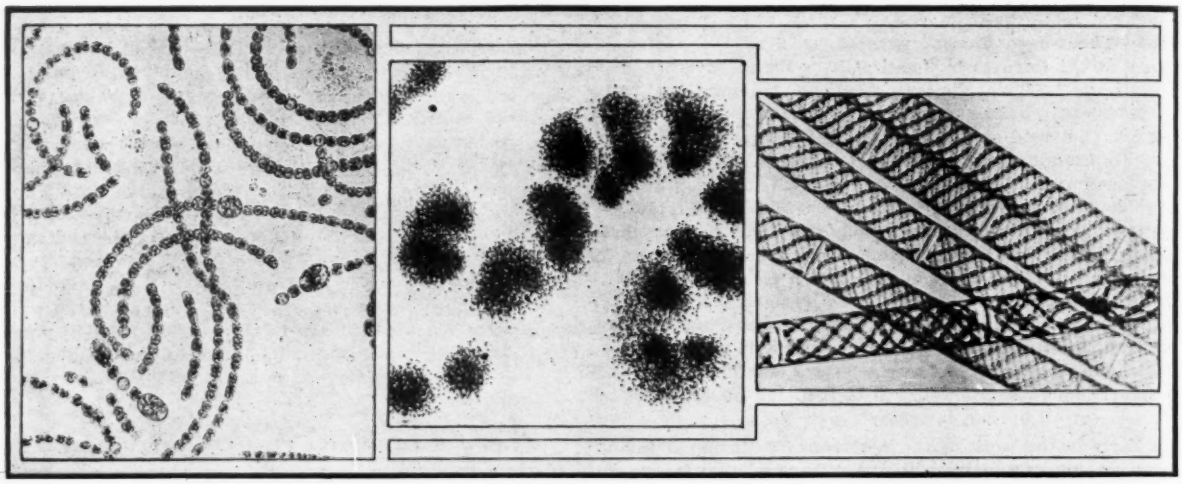
It is interesting to note that, while these methods are still in use, the oxy-acetylene process, developed only within the last two or three decades, offers better and more efficient means of making both types of joint represented in this ancient Roman specimen. Just as oxwelding has a wider field of application than forge welding, so is the newer process of bronze-welding more generally applicable than brazing.

In bronze-welding, two pieces of metal are joined by applying molten bronze to the fluxed surfaces, using an oxy-acetylene blowpipe to melt the bronze which is in the form of welding rod. This use of blowpipe and welding rod gives the operator much greater control of the work than is possible in ordinary brazing and permits many operations that are not feasible by the older process. In the matter of technique, bronze-welding resembles oxwelding except that in most cases only the bronze is actually fused, the metal to be joined being heated only to a dull red. This is possible because molten bronze will adhere very strongly to the heated, clean surface of many metals in the presence of a suitable flux. The result is a strong, tight joint as the bronze used had good tensile strength and the adhesion between bronze and metal is remarkably strong.

Bronze-welding has been particularly useful in repair work on malleable and gray iron castings. Fusion welding of malleable castings is out of the question as the high temperature would destroy the malleable properties. The latter are not harmed by the relatively lower temperatures used with bronze.

Although only a few years old, this process has already gained a large circle of enthusiastic advocates and many shops, large and small, are using it to splendid advantage.

Eliminating Tastes and Odors Caused by Algae in Water



Troublesome microscopic organisms found in water supplies.—At left, Anabaena, which produces an odor ranging from grassy or moldy to a distinct pigpen odor; center, Clathrocystis, which produces a sweet and grassy odor; at right, Spirogyra, which produces trouble other than from a characteristic odor

By CHESTER COHEN*

Sanitary Engineer, Texas State Board of Health

ALGAE are forms of plant life which need warm temperatures and suitable food and sunlight for their development. They usually contaminate uncovered reservoirs only. The algae spores may be transported by means of air or other forces in much the same way as bacteria. On account of their wide prevalence and natural aptitude for developing in nearly all waters, especial care must be exercised in their control in the southern states where temperature and sunlight conditions are particularly favorable.

Algae growths are partly responsible for discoloring the water in which they develop, for imparting tastes and odors to the water, for clogging filter beds used in water and sewage treatment, and for filling the pores of the filter material, thereby interfering with sand filtration. Their presence in large quantities may also cause trouble in industrial enterprises or may render the water unfit for swimming pools.

Living algae impart distinctive tastes and odors to water because of the essential oils which they produce. The odors are sometimes described as fishy, grassy, oily, etc. When the algae growth becomes so heavy as to exhaust the food supply present in the water, they may also become a source of odors of decomposition as they begin to die.

In addition to the tastes and odors due directly to algae growth, there is another important group of reactions resulting from the combination of organic matter with the chemicals added in the process of water treatment. This includes a great many medicinal tastes, like iodoform. These usually result when insufficient chlorine is applied to a water containing much organic matter. Here, of course, the remedy would be superchlorination followed by some method of dechlorination, or allowing sufficient time for the chlorine to evaporate from the treated water. Such tastes are especially noticeable where the water has been allowed to become stagnant and is then chlorinated.

Some operators attempt to treat algae-infested water by placing a bag of copper sulphate in the mixing basin. This procedure serves only to kill off the algae which have already developed in previous units. To this dead algae or dead organic content is added the chlorine treatment in amounts sufficient only for sterilization. Needless to say, the result is a water containing a strong medicated taste. The most economical and satisfactory procedure would be to prevent the growth in the first place rather than allow them to develop and then to kill them. In this way the problem of objectionable taste due to the dead algae and chlorine compounds would be avoided.

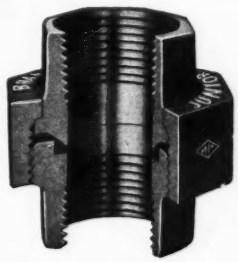
Some special low forms of algae are able to develop in the absence of sunlight and they therefore develop in the iron and alum solution feed line to the coagulation basin. Thus, these distribution pipes may become clogged and the chemicals prevented from reaching the coagulation basin. Still other forms are able to grow in closed pipes and often seriously interfere with the distribution of water through the mains. The presence of algae growths in a water may also provide a favorable medium for bacterial growth that are objectionable.

There are two methods by which odors may be eliminated. One is to destroy the odor and the other is to destroy the algae which cause the odor. It is usually more practical to control the algae growth than to attempt to eliminate the odors.

(Continued on Page 51)

*Excerpts from paper presented at the Fifth Short School for Sanitarians, sponsored by the Texas State Department of Health.

BRANFORD UNIONS



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Singing Branford Junior's song:
"Oh, we are the jolly Branfords,
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Never is there need for resting
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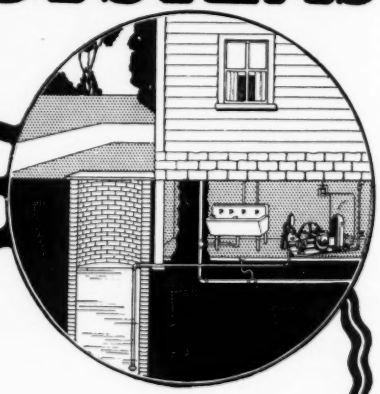

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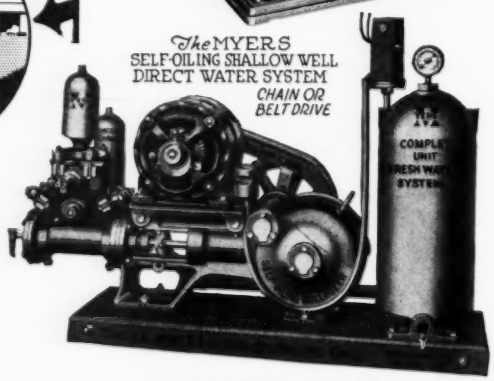
DIRECT WATER SYSTEM
CHAIN OR BELT DRIVE



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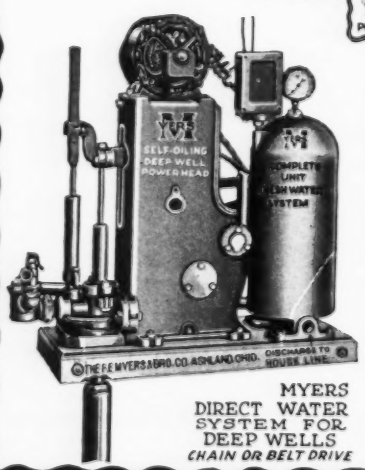
SELF-OILING DEEP WELL POWER HEAD
COMPLETE UNIT FRESH WATER SYSTEM
THE F.E. MYERS & BRO. CO. ASHLAND, OHIO.
DISCHARGE TO HOUSE LINE

MYERS
DIRECT WATER
SYSTEM FOR
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Algae Control

There are two well-known methods of controlling algae, the choice of which depends upon whether the storage basin is large or small. Small basins and tanks can be easily covered to prevent the sunlight from reaching the water, thereby checking the growth of the organisms. With large impounding reservoirs it is impracticable to attempt covering, and a chemical must be added to the water to eliminate the plant growth. Among the more or less theoretical considerations for algae control there might be mentioned the elimination of the chemical compounds which serve as algae food and the application of coagulants which would drag the algae down to the bottom of the reservoir, where the sediment could be flushed out without interfering with the continuous operation of the system; or, again, the growths could be controlled by adjusting the hydrogen ion concentration.

The usual algicide employed is copper sulphate or bluestone, although rigid experiments have pointed to a more general use of chlorine as an effective algicide. The amount of the dosage with either chemical depends upon: (1) the individual organism to be destroyed; (2) the amount of suspended or dissolved organic matter in the water; (3) the physical characteristics of the water as regards turbidity, color and temperature; (4) the retention period to be allowed after treatment, or the allowable period of time for maintaining the unit out of service.

Satisfactory algae control consists in keeping the plant growth at a minimum. This necessitates regular microscopic analyses and counting the forms in order to be able to check the growth when an increase is observed. Analysis also permits the detection of especially objectionable forms that require immediate treatment. Samples taken at different depths in the reservoir indicate the zones of growth and enable the operator to compute the volume of water in the zone of growth. It is necessary to treat only that volume of water in which the algae are growing, and in this way economy in the use of the algicide is effected.

In the use of chlorine the dosage is figured by first determining the chlorine demand of the water to be treated and then applying enough chlorine to give the residual quantity required for the particular organisms. In the copper sulphate method we have the total quantity of salt necessary, whereas with chlorine the dosage is based upon the residual value rather than on the total chlorine to be applied.

This is because chlorine has a greater affinity for organic matter in the water than has copper sulphate and is more readily oxidized.

Applying Copper Sulphate

Copper sulphate may be applied either as a powder or in solution. Application of a solution feed could be effected by dissolving the copper sulphate in a tank placed on a boat and then spraying the solution over the surface of the water, distributing it at different depths by means of a hose connection. In the powered form it may be applied by dragging sacks of the salts through the water over such a course and at such a rate as to permit an even distribution, dissolving the salts through the entire body of the reservoir being treated. The problem of evenly dosing with copper sulphate is the most difficult point connected with reservoir control and is likewise the most important. Fish life is killed by too high concentration of copper sulphate; in fact, some trout are affected by concentrations as low as 1.2 pounds per million gallons. On the other hand, if certain portions of the water receive under-dosages the algae are not affected. Not only has the application of the chemical been wasted, but the various under-dosed areas of the reservoir will serve as seeding places to recontaminate the rest.

Destroying Water Weeds

The growth of chara and other types of water weeds cannot be destroyed by ordinary dosages of copper sulphate or chlorine. The only successful method of dealing with these larger organisms is to cut them below the water line or drag the bottom of the reservoir in such a way as to pull out and remove the submerged vegetation, both plant and root. Such procedure should be begun before the seed is ripe in order to prevent the distribution of the seed.

There are objections to the use of chemical agents for the elimination of algae growths, all of which are worthy of consideration. Chemical treatment is a temporary measure and does not provide permanent relief; under-dosages are ineffectual and wasteful; over-dosages may result in a discoloration of the water or may render the supply unsuitable for use temporarily because of excess chemicals or may kill fish in the stream receiving the copper-treated effluent. The weight of public opinion is opposed to chemical treatment or "doping" a public water-supply. The copper salts may possibly have poisonous effects upon the human body. The effect of copper salts on the human being and the rate of precipitation and elimination of the copper salts from the water are still disputed. The combination of chlorine with organic matter may produce objectionable tastes.

Chlorine as an algicide possesses certain advantages over copper sulphate. It is more easily applied either in solution or in gaseous form. It will be dissipated into the air after a short time and cannot therefore be accused of affecting the health of the person drinking the water. It is especially applicable in small reservoirs already being treated with chlorine as a bactericide, because only a small increase in the dosage is necessary to make it serve as an algicide. In small basins, where the retention period is short, it is not necessary that the dosed unit be thrown out of service, whereas the copper sulphate treatment does require that the unit remain out of service in order to prevent the copper salts from entering the mains. The chlorine solution may serve as an algicide without raising the maintenance cost of the units. Where chlorine is used as an algicide, attention should be called to the possibility of double chlorination. A distinct taste of chlorine in the water is objectionable to the consumer.

Algae Not Harmful to Health

It is generally conceded that, aside from the physiological effect, algae do not directly concern the health of the water consumer. If they make a supply unpalatable or otherwise objectionable, however, other sources of water may be resorted to which might be questionable from a sanitary standpoint. The relation between algae and bacteria is not well understood, but it may play some part in determining the sanitary qualities of a water-supply. According to the latest standards of the U. S. Public Health Service, drinking-water should be clear, colorless, odorless and pleasant to the taste. With the possible exception of dissolved mineral salts, and pollution by sewage and trade wastes, algae growths are the most important agents in determining the physiological characteristics of water. It is for this reason that a close study of control methods is most desirable.

If we plumbers do not believe in ourselves and have faith in our trade, who is going to? I am a great believer in advertising our trade among its members and to encourage them to believe that their trade is one to be proud of, and not to be ashamed that they are plumbers. The plumber who does his work honestly and treats his customers the way he would like to be treated is the kind of plumber who loves his trade and does credit to the industry.—Albert B. Dibble, New Haven, Conn.

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$4.20 for twelve weeks' service. We send new cut each week. You take copy from this page.

Every up-to-date retail merchant wants to advertise. But to prepare advertising takes time and requires training. A busy man may not have time to see to the details. For him this page is published. He may place his order and each week receive a new illustration cut and a reprint of the page to hand to his local newspaper —and his advertising work is done. It costs only $4.20 for twelve weeks. Many men have found it a time-saving help. Place your order today.

Series No. 22

Before Ordering Fuel

—check your heating plant

SPECIAL price concessions make summer a good time to buy fuel. But before you buy, let us make an inspection of your heating plant. Particularly if your fuel bill was high last winter you will want us to check your heating plant to see that it will work more economically next winter. Just telephone and we'll send a competent man to put the heating plant in first class working order.

(In this space your Name, Telephone Number and Address).

DON'T neglect the news columns of your local paper. Your name there is worth money to you—hand the following item to your newspaper:

URGES WARM WEATHER HEATING PLANT INSPECTION

Many a householder, says Harry Brown, local heating contractor, who saves money on his fuel bill by making summer purchases, loses more than he has saved by neglecting to keep his heating plant in first-class working order.

"A heating plant is like an automobile," said Mr. Brown. "It needs going over occasionally—not because it refuses to perform, but to make sure that it is performing at top efficiency.

"It's like getting more miles to the gallon of gasoline with a car—you get more of the heat value out of the fuel you burn if your heating plant is kept in condition."

Save Money on Your Fuel Bill

NOW is a good time to buy fuel—many concerns make special summer price concessions. But cheaper fuel will make no difference in the size of your winter's fuel bill if your heating plant is not operating efficiently. Before laying in next winter's stock, then, let us check over the heating plant and put it in condition to get the most out of the fuel you do buy—at whatever price.

(In this space your Name, Telephone and Address)

GET out the following letter to all your customers—fill in time with heating plant inspections and repairs—change the inspection offer in any way you want—but get the inspection idea before your customers.

HARRY BROWN
PLUMBING & HEATING

Two Rivers, N. Y.
July 14, 1928

Mr. Edward Jones,
Two Rivers, N. Y.

Dear Sir:

We are instituting a new service — heating plant inspection.

If you have an automobile, you know what it means to have it so finely adjusted that you get a little more mileage out of every gallon of gasoline. It's the same way with a heating plant—It is, after all, a piece of mechanical equipment. If it is kept conditioned its performance will be more efficient and it will extract more of the heat value out of the fuel which you burn.

During the summer it is customary for fuel companies to offer concessions in prices and, of course, every householder wants to take advantage of the possible savings.

But before you place your order we suggest that you permit us to go over your heating plant. We will make an inspection now, and one more after the heating season opens, for a nominal charge of $1.50. That will assure you of an efficient heating plant this winter.

Just phone. We'll send a competent man.

Very truly yours,
HARRY BROWN

Ampinco

SHOWERS AND BATH FIXTURES

THE white china trim and polished surfaces of AMPINCO showers and bath fixtures completely satisfy the present-day demand for decorative bathrooms. But the plumber knows that AMPINCO beauty is more than "skin deep." The enduring qualities of AMPINCO fixtures are the outgrowth of years of constant study, conscientious workmanship, honest dealing. Their reputation is too precious to allow the slightest deviation from established standards. Plumbers who use these fixtures never need make apologies for the job.

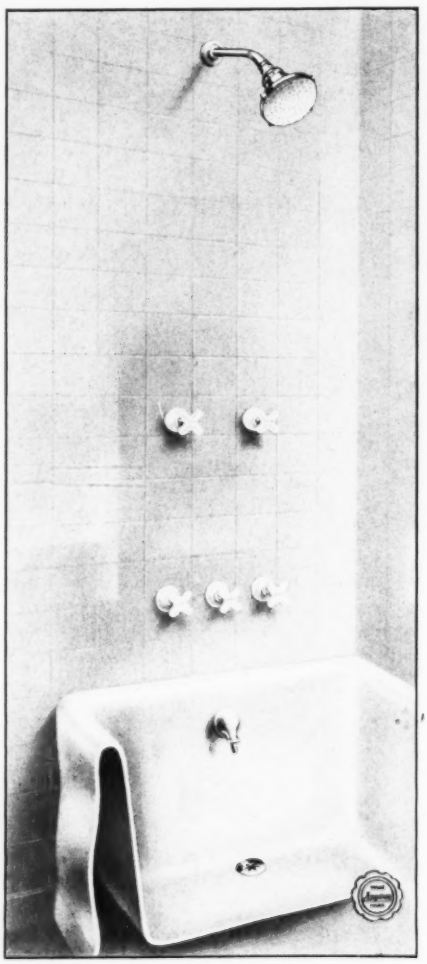
Ampinco Pete says:—

"Folks give me a lot of credit for pushing jobs through in a hurry. I admit I'm no snail—but it's really the AMPINCO fixtures I use that make labor costs shrink. They're mighty easy to install."

A SCOVILL PRODUCT

Scovill means SERVICE to all who require parts or finished products of metal. Great factories equipped with modern machinery, laboratories and skilled workmen are at your disposal.

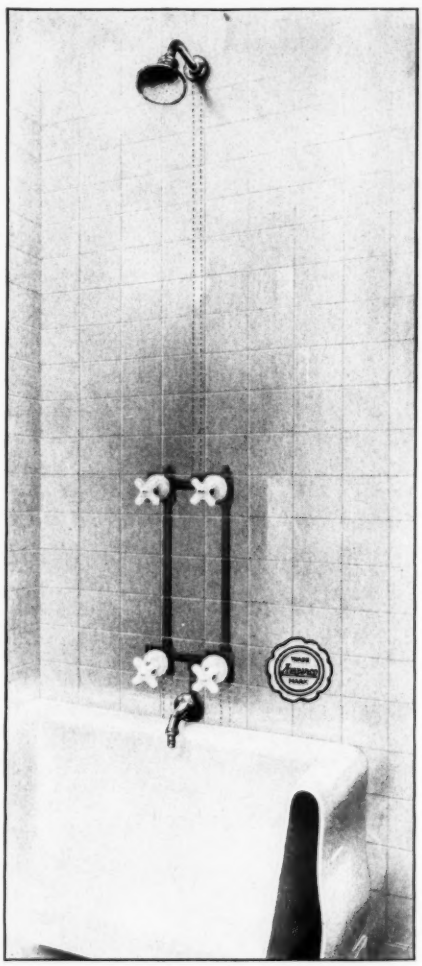
Showers & Bath Fixtures



No. 13262
With Shower Head Combination "A"

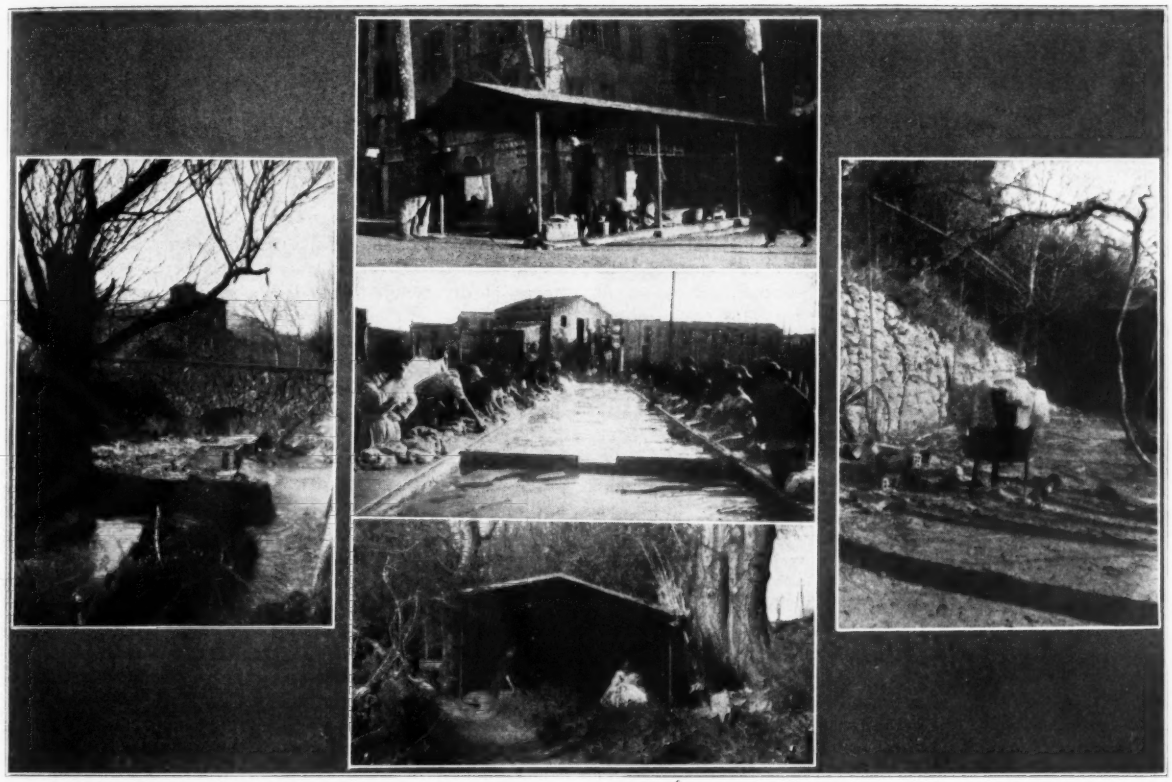
In exclusive hotels, clubs, apartments, homes . . . wherever plumbing is regarded as important . . . that's where AMPINCO showers and bath fixtures have their place. The AMPINCO line includes in wide variety both exposed and concealed numbers — overhead showers and the famous Kenney body needle showers that render shower curtains unnecessary.

Nos. 13262 and 13053 above, represent two AMPINCO overhead shower models of the concealed type. No. 13053 features the overrim tub supply fixture. Exposed metal parts nickel-plated, white china handles and escutcheons. For complete details, write for free illustrated catalog. —*The American Pin Company Division, Scovill Manufacturing Company, Waterbury, Conn.*



No. 13053
With Shower Head Combination "D"

Ampinco
PRODUCTS



Left: Typical countryside lavoir showing the box-like arrangement in which the washerwomen kneel and slabs of stone on which they pound out the wash.—Center, top: A makeshift lavoir in the heart of Marseille just behind the "Bourse" or stock exchange.—Middle: A typical village lavoir.—Bottom: A lavoir supplied with hot water from a natural spring in Aix-en-Provence.—Right: A "lessiveuse" or French wash boiler for outdoor use, with the mushroom percolator lying on the ground

Laundries in France

By THEODORE WOLFRAM

THE WORD "lavoir" was not usually included in the every-day vocabulary of the average English-speaking person before the late war but that has been changed since our expeditionary forces made the acquaintance of the French housewives who still spend an enormous amount of time and energy endeavoring to pound and rinse the dirt out of the family washing under conditions that would surely cause the ladies of our land to rise in indignant protest, to say the least.

A lavoir is simply a public or private "laundry" of the most primitive kind, ranging all the way from a simple wooden box, minus one end, stuck in the mud or gravel alongside a tiny brook to quite elaborate and ornamental structures along the banks of the larger streams traversing the bigger towns and cities of France. No two seem to be exactly alike excepting in that running water—a stream, river or spring—seems to be an absolute requisite as no true Frenchwoman considers her washing properly done unless it has been rinsed in flowing water.

Out in the farming or country districts each family or group of families—depending on the available streams—has its own little "lavoir." In some cases it may be a fairly well built structure affording some shelter and conveniences, but in most cases it is simply a rudely constructed three-sided wooden box, bedded with straw, placed alongside a brook. In front of this box and sloping down into the water is a flat board or large stone which somewhat resembles our so-called "washboard." My present laundress boasts nothing better than a plain wooden box but her "washboard" is a large slab of beautiful marble.

As most French people do their cooking over an open fire in a huge fireplace or on a tiny kitchen range, they are usually forced to boil their soiled clothing out of doors. In place of the ordinary type of "boil-

An article such as this serves to show the great need for American sanitary equipment and the enormous possibilities for selling and installing this equipment in foreign countries. A large Manchurian hospital was described recently in "Domestic Engineering." Almost every bit of the mechanical equipment for this hospital was bought in the United States. There are opportunities in foreign countries that manufacturers of plumbing and heating goods and plumbing and heating contractors who wish to expand, would do well to investigate.

er," they use what is known as a "lessiveuse." This is simply a cylindrical, galvanized tank containing a mushroom-shaped percolating arrangement which forces the boiling water up to the top of the tank and down through the wash, a constant circulation being maintained. Some are simply small affairs which can be heated on the kitchen stove or fireplace, while others are huge affairs for outdoor service, and so arranged as to permit a fire being built under them or in a firebox forming an integral part of the tank.

After the clothes have been boiled the French housewife wrings them out by hand—"wringers" are quite an unknown luxury—and carries them down to her "lavoir." Kneeling in her little wooden box she soaps each article and placing it before her on the smooth, flat "washboard," she proceeds to pound it quite thoroughly with a flat wooden paddle. This operation completed, the washing is rinsed in the running water of the stream and usually simply spread out on the grass or a convenient hedge or fence to dry.

Compared with our electrically driven washing machines and other labor-saving laundry devices the above procedure seems tiresome and hard but the farm-wife's lot is quite easy alongside that of the poorer class in the cities and towns. She has her "lavoir" near at hand while the latter are often forced to cover long distances to reach the nearest available "lavoir."

Take Aix-en-Provence for example. Here is a town of southern France with a population of forty some thousand inhabitants most of whom live in ancient houses many of which are architecturally beautiful and historically interesting but with absolutely no laundry or other conveniences—many of them not even a sufficient water supply. Even after the clothes have been boiled in some fashion or other the labor is just begun, for practically all the "lavoirs" of Aix are located along the banks of a little stream, the Torse, which is a good mile outside of the town and at least two miles from the far side. The unfortunate laundresses of Aix are thus forced to trundle their soiled linen out there and back in little push-carts or carry it in baskets on their shoulders. At that, some of them are fortunate as in the immediate neighborhood of the Torse there is a "lavoir" containing a spring of luke-warm water. It is easy to imagine what a boon this is in winter especially, but unfortunately this particular "lavoir" accommodates only a scant dozen washerwomen, and their sisters are forced to content themselves with the chilly waters of the Torse.

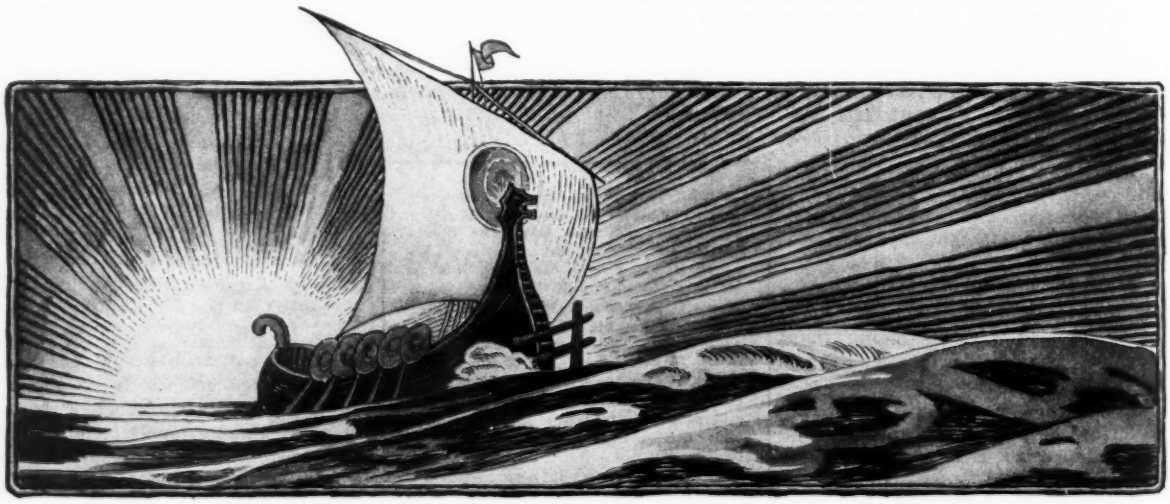
Another novel "lavoir" is one which serves some of the suburbs of Toulon. This is simply an elevated stone walled canal which flanks the roadway traversing the beautiful gorge of the Olliule. This canal is not more than a foot and a half in width but it is just the proper height so that the washerwomen can stand at their work and as there is quite a fair down grade there is no lack of running water. On a sunny day it is a picturesque sight to see hundreds of bare-armed washerwomen pounding out their washing on the wide, flat walls of this canal.

Most villages boast a fairly large covered "lavoir" which serves the entire community. In most cases these "lavoirs" are located on the bank of a river or stream from which water is diverted through a large basin. Around this basin is an elevated concrete border sloping down into the water of the basin. The washerwomen bring their little wooden boxes and placing them behind this border they follow the same procedure as their country sisters, using the concrete slope as a washboard.

In many of the larger cities the "lavoirs" are huge floating structures extending out over the river. Many of them are equipped with heating plants which supply hot water for the washing and also furnish heat for large drying rooms. Some also contain wringers and other conveniences but in most particulars they are quite similar to the small town "lavoirs."

Apart from the seemingly unnecessary labor connected with this rudimentary manner of laundering there is a much greater objection and that is the insanitary aspect of this method. Whatever may be the advantages of running water, it is only logical to suppose that a stream of water that serves as the laundry for several towns, villages or even families, runs a serious risk of becoming contaminated to some extent or other. Some effort has been made to educate the French people away from the idea that a stream is absolutely necessary for proper laundering, but this propaganda has so far made but little headway.

Of late many so-called "model" or "modern" laundries have sprung up in various cities and towns of France but their success is still somewhat in doubt as the conservative housewife shrinks from confiding her finery to the tender mercies of the mechanical devices with which these laundries are equipped, and also refuses to believe that these modern devices have any advantage over her traditional methods. However, these well equipped establishments are not at the mercy of the weather and are able to do their work rapidly and well whether the sun shines or not and that factor is gradually winning them the trade of the hotels, the tourists and the commercial travellers.



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MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

New Prices Effected in the Range Boiler Market

THE week brought forth a revision of prices on range boilers when one manufacturer reverted to the sheets issued to jobbers, that were in effect in September 1927. This entailed an approximate reduction of 12½ per cent over the last published sheets and was followed by a number of other makers. Contractors' requirements throughout the country generally continue to expand as the year passes through the half way mark giving many of the interested factors reason for expressions of optimism when discussing business for the balance of the year. While trading interest is keener in the Greater New York section, due to the tremendous building program which is beginning to make itself felt in the matter of purchases, the Central West, New England and Middle Atlantic areas have begun to show an activity in construction that is gradually becoming a factor where the sales of plumbing and heating materials are concerned.

The Department of Commerce at Washington, D. C., in its reports gives the total shipments on vitreous china plumbing fixtures as 322,939 pieces as compared with 325,146 pieces in April and 279,512 in May 1927. The report further indicates that the June wholesale prices of standard plumbing fixtures for a six-room house were $100.09 as compared with $101.11 in May and $104.09 in June 1927. These prices are the average of those reported to the Department of Commerce by twelve representative manufacturers and wholesalers. The figures include six standard fixtures, net to retailer without freight. Figures from the same source indicate that 8,997 water systems, 42,495 pumps and 17,102 separate cylinders were shipped during the month of May.

CENTRAL WEST

July Given Business Momentum—

The rounding of the half year mark finds 1928 has given manufacturers, distributors and installers of plumbing and heating materials a substantial amount of business. Although volumes have not perhaps expanded as steadily as was characteristic of their first six month period of 1927, nevertheless it is felt, according to information gathered, that the irregular rate of trading has averaged well enough to give the industry an optimistic outlook where the balance of the year is concerned. Some jobbers report that June proved to be the best month of the year thus far and gave July a good start in a business way. So good, in fact, that, despite the mid-week holiday, the first seven days showed an improvement over the last days of the preceding month. The upturn was rather general in so far as the requirements of master plumbers and heating contractors are involved and embraced most of the products in a general way.

Manufacturers generally seem to have pitched production to conform with demand, consequently the close range buying of wholesalers is, with few if any exceptions, handled satisfactorily. This ordering is mostly for business actually in sight or for contracts that have already been drawn, and in many instances is a close reflection of the rate at which contractors are committing themselves with jobbers. Many contractors seemingly hold off until the last minute in placing their business. In Chicago proper, office building and large apartment house construction seemingly predominates and this to some extent would account for the variations in demand for materials. Suburban building activity involving many fine residences is on the increase, according to the reported rate at which permits were issued during June.

In the course of the past thirty days a number of changes in prices were effected by manufacturers. These included an advance of 10 per cent on radiation and 5 per cent on boilers. Soil pipe prices were advanced to wholesalers 2½ points in the form of a new sheet issued by a large producer, while range boiler prices to jobbers were lowered approximately 12½ per cent by some of the manufacturers over their last published sheets.

Soil Pipe

The amount of soil pipe that is being consumed in this territory at this time suffers in comparison with that which was disposed of a year ago. Nevertheless the rate of buying on the part of master plumbers is considered good. While most jobbers are well supplied, manufacturers are in good production in those of their plants in operation, consequently little or nothing is heard of delivery curtailment. Beyond the 2½ point advance made by a large producer to jobbers early this month, no further change has been reported.

Pipe—Steel and Wrought Iron

The rate of demand from plumbing and heating contractors for both steel and wrought iron pipe is good for this season of the year. Manufacturers of the latter kind give the impression that jobbers bought more freely during the past seven days than they did toward the close of June. Steel pipe offices reported little change during the week for which this is written over the steady demand of the preceding seven days. Mills are in good production and are giving satisfactory shipping service.

Fittings

The requirements of contractors relative to fittings showed during the first week of the present month a tendency toward betterment. Jobbers as a rule drew against their bookings more freely during this period than was reported for the previous seven days. Their fittings bins are substantially supplied and manufacturers generally have ample stocks so that deliveries are readily obtained. Makers made no further price changes since those of several weeks ago.

Enameled Ware

Manufacturers' stocks of staple enameled ware items are broad enough to insure shipments that usually are satisfactory. Jobbers who do not have complete stocks are able to fill-in quickly. Demand from contractors is mounting steadily and in some quarters is on a par with the rate that obtained a year ago at this time. Many of the manufacturers are satisfied with the rate at which their jobbers are specifying out the business they placed at the time of the last price advance. Prices were not disturbed by makers.

Pottery

Practically all of the old wash down bowl and tank business is liquidated as far as manufacturers are concerned and jobbers are rapidly turning over any of this merchandise they have on hand. This, coupled with the swelling demand from master plumbers, is resulting in the placement of considerable fresh business with potters by the wholesale trade. Factories are so situated in the matter of stocks that deliveries are made within the usual time. Producers have announced no change in prices.

Plumbers' Brass Goods

Some Chicago offices of manufacturers of brass goods consider their June sales better than those of any previous thirty days this year. Distributors are taking in fresh supplies of both cast and tubular items about as the demands of their trade dictate. Manufacturers, while not by any means over-burdened with reserve stocks, are in a position to render shipping service that is satisfactory. Factory prices remain unchanged.

Range Boilers

The outstanding feature of the range boiler market for the week was the announcement of an approximate 12½ per cent reduction in prices by one manufacturer to jobbers over his last sheet. This move was followed by at least one other factor and affects both riveted and welded boilers of the 30-gallon size. There were no new developments where demand is concerned. Contractors are not calling for this commodity in the quantities that were required a year ago. Factory shipments are prompt.

Boilers and Radiators

Some of the manufacturers report shipments heavier now than they have been for some time. The future delivery business that most of them entered following the advance in prices was also in good volume. Heating contractors are requiring enough equipment to give consumption a fairly good seasonal position. Prompt deliveries are available from the warehouses of manufacturers.

NEW YORK

Trading Broader and Steadier—

Business in the metropolitan area, including the section toward Albany, Northern New Jersey and Long Island, appears to be as good or better at this writing as the most optimistic of the men engaged in the plumbing and heating industries prophesied. Master plumbers and heating contractors, while by no means rushed as they were during the boom days following the war, are generally fairly busy, and the average wholesaler is doing a business that amounts to a considerable volume, with the larger wholesaler apparently getting a larger percentage of the business than is usual. Building permits and contracts awarded continue to aggregate large figures, and if these are a criterion, the latter half of the year should be better than the first six months have been.

Prices and delivery conditions on the majority of products covered by this report are satisfactory. One encouraging item is the increase of 2½ points in soil pipe, apparently made by practically all of the foundries who were below their competitors' prices. Another is the strong tone for radiator valves, salesmen saying they are getting 10 per cent more for these than they were a month ago. Cast brass figures, while not officially changed, are also higher, the difference in the past thirty days in many cases amounting to 5 per cent. Of course fittings, boilers and radiators each had a recent change. However, prices on range boilers were cut by some manufacturers to jobbers on July 2, the figures on the size usually used as the standard being reduced approximately 12½ per cent over the last published sheets.

Soil Pipe

The price advance made by one large interest on July 2 has been followed in large measure by other companies whose discounts paralleled those of the foundry which announced the advance. Little or no protection was given by the companies involved, it is reported, and wholesalers who had not covered in advance are being forced to pay the higher rate. Demand, which has been consistent with the season, was disturbed very little by the change, due to the lack of protection. Deliveries from most foundries can be made promptly, one or two needing two or three weeks' advance knowledge.

Pipe—Brass, Steel and Wrought Iron

One manufacturer of brass pipe finds his sales in this territory have been a little better during the first half of 1928 than during the corresponding months in 1927, and believes this is true of the industry. Wholesalers' business in this commodity at the present time is rather quiet, and this is reacting on makers' current sales. Wrought iron pipe business is practically normal for the season, while pipe mills find that July demand has picked up a trifle over the call during June, a slow month for many makers. Both wrought iron and steel producers are able to ship without delay, but at least one big brass company is two to three weeks behind in deliveries, while another has a force working nights to keep abreast of orders. Manufacturers' prices on all three types are firm, and the resale market on wrought iron and steel is fairly good.

Enameled Ware

Master plumbers are installing a good many pieces of enameled ware, this applying to both staple and special types. This keeps the stocks of the distributors turning over rapidly, and in turn is productive of good business for the manufacturers. Few of the wholesalers had stocked any large amount of ware, although recently the trend has been toward larger inventories, and any considerable call from the trade is felt very quickly at sources of production. There has been no change in quotations from makers. Deliveries of staples continue to be good.

Pottery

One of the larger makers finds that demand for the type of ware that goes into large buildings is slightly on the wane, but that there is still a good call for pottery for use in dwellings, especially in the Long Island and Westchester County territories. Another potter, who does a large business in staple ware, finds demand is holding its own, with many new orders coming in at the most recent

price sheet. Prices generally appear firm. Deliveries of staples can be made with little delay.

Plumbers' Brass Goods

There is an exceptionally good price tone on cast brass, one large manufacturer reports, stating his company is getting approximately 5 per cent more on most items than it was a month ago, this without any particular question from the distributors, who have noted the rising market in copper. The prices quoted on tubular goods also show strength. Demand in New York City and environs on both types is very good, with the master plumber actively in the market. The increased demand has not resulted in shipments being deferred, except in occasional instances, one tubular manufacturer finding difficulty in satisfying his customers.

Range Boilers

The week was marked by the unsteady prices culminating in a reduction over the last sheet of approximately 12½ per cent in sizes that might be called the standard, this reduction being made by one manufacturer in a sheet dated July 2 and followed generally by several other makers. Demand, as is usual following a decrease in prices, is very light. Quick deliveries are the rule.

Boilers and Radiators

Demand for boilers and radiators, while not at the peak that it was immediately prior to the last price advance going into effect, is still fairly good. Prices are said to be firm at the new base, with practically all manufacturers making quotations from the newest sheets. Deliveries are not delayed, when boilers or radiators are needed in a hurry.

Fittings

Current business on fittings is consistent with the season and the fact that there was considerable business placed before the last change. Manufacturers' shipping departments are busily engaged in making shipments against contracts. Firmness is shown in makers' price quotations. Deliveries are not delayed.

MIDDLE ATLANTIC

Optimism Prevails In This Territory—

The second half of the year started off in Philadelphia with the average manufacturer and wholesaler of plumbing and heating goods much more optimistic than at the beginning of 1928. This confidence extended westward from the center of the Middle Atlantic territory and, to some extent, to the south as well. Current business at the present time is comparing much more favorably with demand last year than it was during the earlier months of the year, and those who are willing to forecast future developments are almost unanimous in declaring their belief that the final six months should develop fairly good business.

Business for the average manufacturer is good enough to justify optimism on his part. While most of the producers of the major products in the plumbing and heating lines have found that their shipments into the Middle Atlantic section are not as great as during the earlier part of 1927, the business done has been better than many had prophesied at the beginning of the year. Prices for the average commodity, when viewed in the light of those current during the past two years, are not at all discouraging, with the figures on many of the products showing improvement from week to week. This is especially true of boilers and radiators, tubular brass goods, brass pipe, pottery, and fittings. Soil pipe might be added to this list, in view of the 2½ point increase put into effect on July 2 by one large manufacturer. Range boiler prices to jobbers were lowered 12½ per cent over those indicated in the last published sheets of several manufacturers.

Delivery conditions continue favorable on practically all commodities. Slight delays are reported by some firms on a few products, but in almost all cases competitive makers are able to make prompt shipments. The credit situation has not changed.

Soil Pipe

The price increase made by several of the firms during the first week of the month brought only a fair amount of business into the market, due to the fact that the average foundry is said to have given only a very little protection, if any, at the prices quoted before the 2½ point increase which manufacturers made to jobbers. This increase, of course, reduces the spread between the high and low quotations to 2½ points. Demand continues to be seasonal, the wholesalers, as a rule, buying only enough soil pipe to take care of the requirements of their trade. With one or two exceptions, foundries can ship reasonable amounts of almost all sizes with little or no delay.

Pipe—Brass, Steel and Wrought Iron

One brass pipe maker finds that demand is still strong enough to make deliveries within a month difficult, while another has increased the number of hours' work at its plant in order to take care of the excellent demand for the commodity. One wrought iron pipe mill finds that the month just closed will compare favorably with others, due to the fact that several big orders for jobs were received during the last day or so. The usual diversified business from many sources was lacking in large measure, however. Steel pipe demand for the month was only fair, but the call for this product during the latter part of the six months' period was better than during the first quarter. Manufacturers' prices on all types are unchanged.

Enameled Ware

There is little new to report on the market for this commodity. Business is still consistent with the season, with various makers reporting a variety to the demand, depending to a great extent upon the various potteries' location and its specialty. Master plumbers are ordering a considerable quantity of enameled ware, and this steady business rapidly depletes wholesale stocks, where they have not been built up to any considerable extent. Both manufacturers' and resale prices appear firm. Shipments are not ordinarily delayed.

Pottery

One of the larger companies is able to report an increase in shipments, both for June and for the six months period over the same divisions of 1927. This increase applies not only to staple goods, but to the better grade ware as well. It is doubtful if this condition is general, however, as some other potters find that their volumes in this territory are below those of last year. Current demand is as good as is usually expected in July. Prices appear firm, with both makers and distributors agreeing in this report. Sources are able to deliver staples promptly.

Plumbers' Brass Goods

One of the larger tubular goods makers finds there was a smaller number of rush orders placed during the first few days of July than is usual in the first weeks of the summer months. Another company, reporting a fair current business, is able to point to an increase in shipments for the first two quarters. Others find that they have done less business during the first half of the year

than they did in 1927. Cast brass demand is proceeding at an even pace, with little variance from week to week, the bulk of the shipments being the result of releases against contracts. Manufacturers' prices for both types of brass are firm and unchanged. Most makers can ship the average order with little or no delay.

Range Boilers

One of the large makers reduced sheet prices to jobbers over the last published prices approximately 12½ per cent on July 2, this decline being followed by many of his competitors, either through the issuance of sheets or the quotation of the new price levels. Demand had been rather slow preceding the change, with prices unsteady, and the decline had the effect of slowing up demand to an even greater degree. Producers have good stocks of boilers and can ship most orders promptly.

Boilers and Radiators

One of the maker's new price sheets, issued recently, increases the price on its entire line of square sectional boilers, except the 21 inch, which is reduced a trifle to bring it in line with other manufacturers' prices. Demand is approximately the same as it was at the time of our last report, when makers found it normal for the season, with some future buying. Shipments against orders placed in June continue active. Few delays in deliveries are reported.

Fittings

Demand for fittings is called "pretty fair" by one of the larger interests, and statements from competitors coincide with this summary. Wholesalers are said to be buying fittings with a little more courage than they were before the price changes which went into effect in June. Some wholesalers did not cover at the time of this revision. Quotations are reported firm. Most makers ship promptly.

The Stock Market

Quotations furnished by Frazier Jelke & Co., Chicago

Par Value	1928 High	1928 Low	Quotations of July 9, 1928	*	Bid	Asked	Last
25	152¾	130⅛	American Radiator Co., com	A	143¾	144¼	143⅞
100	147½	142¼	American Radiator Co., pfd	A	144½	145¼	144½
50	74⅛	53¾	Anaconda Copper Mining Co	A	68	68½	68¾
NP	49	27½	Brunswick-Balke-Collender Co	A	43¼	43¾	43½
NP	117½	90½	A. M. Byers Co., com	A & F	98¼	98¾	98½
100	114½	111½	A. M. Byers Co., pfd	A & F	112	113	112
100	140	130	Century Electric Co., com	G	130	135	132
100	106	101	Century Electric Co., pfd	G	102	104	102
50	6	4	Chicago Nipple Mfg. Co., "A"	B	4	4½	4
50	3	2	Chicago Nipple Mfg. Co., "B"	B	1½	2	2
25	47½	45	Crane Company, com	C	45	46	45⅝
100	121¼	118¾	Crane Company, pfd	C	120	121	120½
100	94	91	Detroit Brass & Malleable Works	D	92	94	92
100	110	105	The John Douglas Co., pfd	I	105	108	105
20	23	17	Eagle-Picher Lead Co	I	16	18	17
NP	50	32½	Fairbanks, Morse & Co., com	A	43	43½	43
100	111½	104	Fairbanks, Morse & Co., pfd	A	108¾	109½	109
NP	134	96¼	Johns-Manville Corp	B	114¾	115¼	115
100	160	150	Jones & Laughlin, com	F	155	.....	155
100	123	120	Jones & Laughlin, pfd	F	121	121½	121
10	21	20	Michigan Copper & Brass Co	D	19	21	20
NP	45	30	Minneapolis-Honeywell Regulator Co	B	36¼	36¾	36½
NP	38½	31½	Modine Mfg. Co	C	36	36½	36
NP	42	32	F. E. Myers & Bro. Co	H	36½	37	36½
100	136	116	National Lead Co., com	A	120¼	120¾	120½
100	147¼	139	National Lead Co., pfd	A	144	144½	144¾
NP	40⅜	17½	National Radiator Corp	B	18½	19½	19
100	108	104	Ohio Brass Co., pfd	H	107	.....	107½
NP	100	91	Ohio Brass Co., "B"	H	92½	93½	93
100	101	100	Penberthy Injector Co., pfd	D	100	101	100
25	26	3	Pierce, B. & P. Mfg. Corp., com	U	5	15	5
100	95	20	Pierce, B. & P. Mfg. Corp., pfd	U	35	36	35
NP	27	18¼	Richmond Radiator Co., com	B	20	21	20
NP	40⅞	36	Richmond Radiator Co., pfd	B	37½	38½	38
100	53	40	Scovill Mfg. Co	U	49	52	50
NP	42¼	33¼	Standard San. Mfg. Co., com	A & F	38½	39	38¾
100	125	115	Standard San. Mfg. Co., pfd	A & F	116	118	116
100	55	45	Trenton Potteries Co., com	U	45	55	45
100	95	95	Trenton Potteries Co., pfd	U	95	105	95
100	300	190½	U. S. Cast Iron P. & F. Co., com	A	248	248½	248
100	137	115	U. S. Cast Iron P. & F. Co., pfd	A	125	127	125
NP	46	38	U. S. Radiator Corp., com	D	38	40	38
100	106	102	U. S. Radiator Corp., pfd	D	102	105	102
100	61¼	27	U. S. Rubber Co., com	A	29	29⅜	29⅛
100	109⅜	55	U. S. Rubber Co., pfd	A	58	58½	58¼
100	154	132⅝	U. S. Steel Corp., com	A	140	140⅜	140
100	147¼	138⅝	U. S. Steel Corp., pfd	A	141	141⅜	141⅜
NP	19	15	Walworth Company	A	15¼	15¾	15½
NP	.....	.....	Williams Oil-O-Matic Htg. Corp	C	.....	.....	.....
NP	106⅞	83½	Youngstown Sheet & Tube Co	A	87¼	87¾	87½

*Where listed—

A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Boston Stock Exchange
F—Pittsburgh Stock Exchange
G—St. Louis Stock Exchange
H—Cleveland Stock Exchange
I—Cincinnati Stock Exchange
U—Unlisted Stocks

The Metal Market

	July 10,	Average June, 1928	Average Apr., 1928	Average 1927
PIG IRON—				
No. 2 foundry, Chicago, Furnace	$18.00	$18.00	$18.50	$19.66
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.85c	1.85c	1.85c	1.83c
Blue annealed sheets, No. 10, Pittsburgh, per lb.	1.90c	2.00c	2.05c	2.20c
Black sheets, No. 24, Pittsburgh, per lb.	2.60c	2.70c	2.75c	2.91c
TIN—				
Straits tin	46½c			
LEAD—				
Chicago	6.20c			

The Old Metal Market

Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	18 c	Copper, light	10 c
Block tin	42¼c	Copper, uncrucibled wire	11½c
Brass, light	7 c	Faucets and valves	9 c
Brass, heavy mixed	7½c	Lead, heavy	5.50c
Brass, red	10 c	Solder joints	9½c
Copper, crucible	12 c		

NOTE: Prices are those quoted on Tuesday of this week.

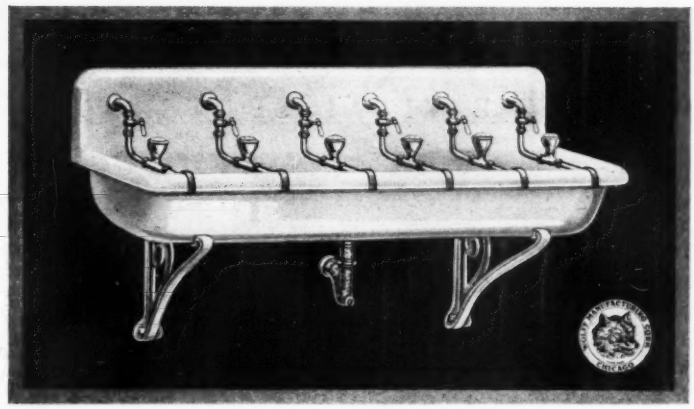
NEW ENGLAND

Volumes Are Increased—

Movements into consumption of plumbing and heating materials during the past seven days were indicative of the further development of early year proposals. With the first half of 1928 now a matter of record, which showed fairly good returns to manufacturers and wholesalers in general, preparations are being made to meet the more active demand of the latter six months of the year. While statistics of new building projects in many sections of New England show decline, the plumbing and heating industry is presently beginning to feel in good measure the active development of earlier proposed construction. Residential work has not as yet gained much momentum but municipal and industrial developments of larger nature are of increasingly broadened dimensions.

Manufacturers' representatives continue to find their volumes to be quite satisfactory and to show improvement as the season progresses. The majority, however, report that they have to work harder to keep their totals up, inasmuch as wholesalers are buying more closely than in former years, ordering in lesser quantities and with more frequency. Jobbers' stocks are, on the whole, well kept up and no embarrassment is felt in promptly filling the immediate needs of contractors.

(Continued on Page 97)



Drinking Fountains for all Uses

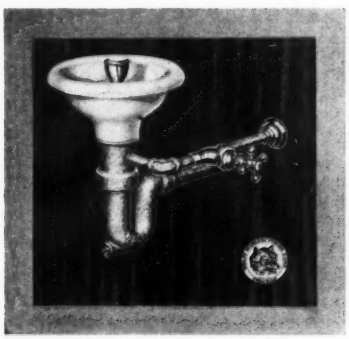
Make a health examination of the factories, stores, offices, clubs and other public buildings in your community.

You'll find ready sales for a number of Wolff Drinking Fountains. A dependable supply of pure drinking water is a real necessity for all commercial, industrial or recreational buildings.

In the new Wolff General Catalogue "G" you'll see illustrated and fully described the entire and complete line of Wolff Drinking Fountains.

Write for this catalogue today. Plan systematic health examinations for your prospects and let this book help you clinch sales and earn bigger profits.

Write for the New Wolff General Catalogue "G"



"Specify Wolff for Satisfaction"

A master plumber recently said, "The best thing a contractor can do is to wrap his tools up in his overalls and throw the lot in the river." He meant that the plumber of today, in order to survive and make money, must become a merchandiser and relegate the mechanical work to others.

Wm J Woolley

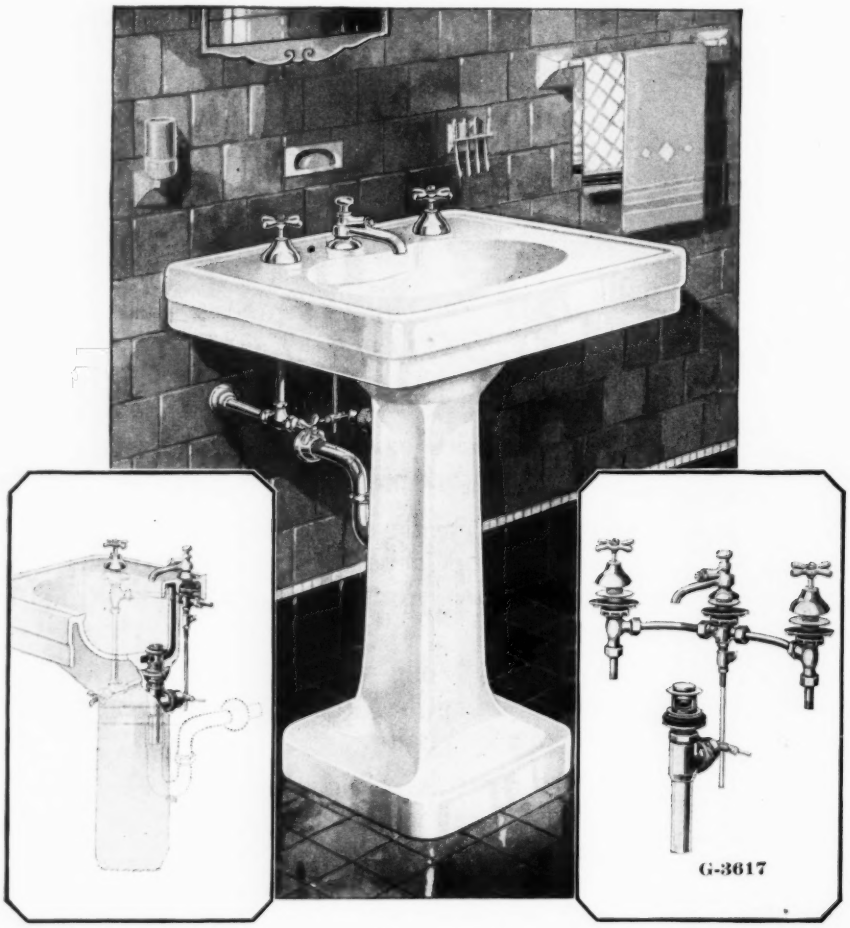
WOLFF CO.

"SUPERIOR PLUMBING FIXTURES"

CHICAGO

The Vital Spots ®

FAUCETS ARE THE VITAL SPOTS OF PLUMBING



A lavatory combination
with ice water connection

A LAVATORY combination with an ice water connection that doesn't have to go in the wall is an advantage in many cases. The Mueller G-3617 Lavatory Combination with Pop-Up Drain and Ice Water Connection has all three valves, hot, cold and ice water on the lavatory.

The spout is furnished in two lengths, the short for Enameled Iron lavatories, and the long for Vitreous China lavatories with hooded overflows.

Mueller laboratory control of materials through every stage of manufacture and Mueller skilled craftsmanship are guarantees of the high quality in all Mueller products.

MUELLER CO. (Established 1857) Decatur, Illinois
World's Largest Manufacturers of Plumbing Brass Goods
Branches: New York, Dallas, San Francisco, Los Angeles *Canadian Factory:* MUELLER, Limited, Sarnia

MUELLER
DECATUR
PLUMBING BRASS AND VITREOUS WARE

QUESTIONS

ASKED BY READERS AND ANSWERED BY EXPERTS

WHAT CAUSES CLICKING SOUND IN WASTE PIPE?

Editor, "Domestic Engineering":—We have a queer problem in an eighteen-story building. Every time we flush a closet, waste a basin or drain a bathtub on the fourteenth or fifteenth floor, we get a clicking sound in the waste pipe.

We have spent quite a little time trying to locate the trouble, without success. We have tested the stack and vents and found them clear, but the clicking sound is still there. We have released the cleanout plugs on the stack to see if it were airbound, but we found it clear.

Can you or any of your readers tell us what may be wrong with such a plumbing system?

Illinois. G. I.

This is another of those problems which can only be solved right on the job, and we would look for a place where the piping comes in contact with the building in such a manner as to permit of some movement, probably caused by the expansion and contraction of the piping, which results in rubbing the pipe against the steel, wood, concrete or brick.

And if this is not the case, it is just possible that some small projection may have been left in either the pipes or the fittings, and the movement of the water in the pipe causes this to vibrate against the side of the metal, and the metal amplifies the sound and carries it along.

HOW TO BLOW-OFF A STEAM BOILER

Editor, "Domestic Engineering":—Kindly give me some advice about the best way to blow-off a steam boiler.

Wisconsin. E. J. S.

The following method of cleaning a steam boiler has been successfully used and is recommended by several boiler manufacturers.

Close all radiator supply valves and remove all vent valves from ends of mains, or, if boiler is valved, close both supply and return. Blow down the boiler through bottom blow-off under a pressure of at least 5 pounds.

Remove the safety valve and put acid vinegar (acetic acid) in the boiler as follows:

Boilers up to 1,000 sq. ft. capacity—3 gallons.

Again remove the safety valve and connect a pipe with gate valve to the outside or convenient drain. This pipe to be not less than size of safety valve. With water in boiler at proper level and valve in top blow-off pipe closed, build a very hot coal fire creating a pressure of 5 to 10 lb. Open top blow-off valve and let water and steam pass through the blow-off line to drain, keep up a pressure between 5 and 10 lb. Supply cold water constantly into bottom of boiler so as to keep gauge glass filled to top. Keep this up without interruption for 6 to 8 hours. During the last 2 hours fill boiler full of water, allowing the hot water to flow through and out of top blow-off pipe to drain.

Close the cold water feed valve and let steam and water flow through top of blow-off line until water level in boiler is at top of gauge glass. Close the gate valve in top blow-off line and with at least 10 lb. steam pressure open the bottom blow-off valve. Draw the fire quickly and entirely drain the boiler. Allow the boiler to cool. Replace thermostatic members in return line valve. Replace safety valve. Close bottom blow-off valve and fill boiler with fresh water to proper level.

Sometimes one blowing off will not give the desired results, in which case the operation must be repeated or continued until the boiler is thoroughly free from all foreign matter.

SOME PLUMBING QUESTIONS AND DEFINITIONS

Editor, "Domestic Engineering":—I would like to see correct answers to the following questions:

1.—How can a toilet room be ventilated through urinal?

2.—Where is an absorption trench used and how is it constructed?

3.—What is a condensing tank and how is it connected?

4.—How would you test a stack that is added to old plumbing system?

5.—What is atmospheric pressure and what has it to do with plumbing and heating systems?

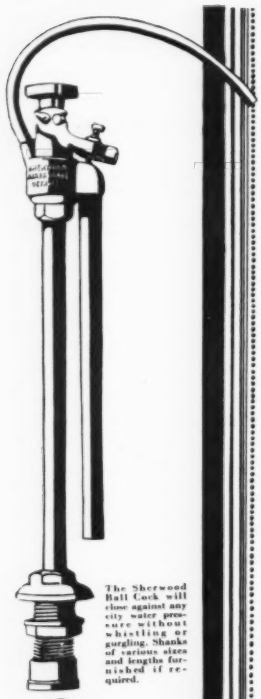
Massachusetts. F. E. J.

1.—By installing a T or Y in the waste pipe, between the outlet of the urinal and the water seal of the trap, and from the side opening of this T or Y a pipe should be run to a heated flue. Some urinals are provided with a hood, to which the vent pipe can be connected. This vent, which is a local or room vent, is not to be connected to the sewer or trap vents.

2.—The absorption trench is used in sewage filtration, when the ground is of sand or gravel at the surface, with a layer of wet soil or clay below this. The open-jointed tile pipe is laid in a bed of broken stone, the bed being the width necessary in a trench of this kind, usually from 2 to 2½ ft. About six inches above the pipe, a layer of tarred paper should be placed, with gravel on top of the paper and level with the surface of the surrounding ground. The extreme end of the pipe line should be continued up through the ground and fitted with a hood to permit the passage of a current of air through the pipe.

3.—A condensing tank is a tank used to intercept the waste water from a heating boiler or tank, its purpose being to cool this water before permitting it to pass into the sewer, so that the danger of expansion and contraction in the waste piping due to the extreme temperature of this waste can be overcome. With lead caulked joints there is danger that the joints would be melted and loosened.

The condensing tank is a closed tank, of steel or cast iron, with waste blow-off line connected to top of tank. The tank should be fitted with a relief pipe, usually 2 inches or larger, extending up through the roof. Sewer connection should be made to bottom of tank with a deep seal trap. Cooling coils may be placed inside of the tanks where necessary owing to extreme temperatures. Sewer



A PLEDGE WELL KEPT

A survey shows that during 1927, one out of every five plumbing contractors failed—and, one of the chief reasons for these failures, as you know, was the selection and use of inferior equipment.

You may be sure, however, that plumbers who were careful enough to select Sherwood Ball Cocks for their work would be careful enough to insist upon equally high quality in their tools and other necessities—this insistence has made them successful.

These plumbers have pledged themselves to quality for their customers—they have bought only the goods of those manufacturers who have pledged quality to them. The makers of Sherwood Ball Cocks, since the beginning, have held firmly to their promise of a high quality, reasonably priced ball cock—and never, for any reason, will they turn from this pledge.

Sherwood Brass Works
Jefferson and Mt. Elliott Aves.
Detroit, Michigan

Representatives: J. A. Riordan Co., Inc., 1600 E. 7th St., Los Angeles; 410 Colman Bldg., Seattle; E. S. Thompson, 2401 Chestnut St., Philadelphia; Fred G. Hoffman, 831 Edgewood Ave., Trenton, N. J. Fred S. Wilsey, Plymouth Bldg., Minneapolis.

The Sherwood Ball Cock will close against any city water pressure without whistling or gurgling. Shanks of various sizes and lengths furnished if required.

SHERWOOD Ball Cocks

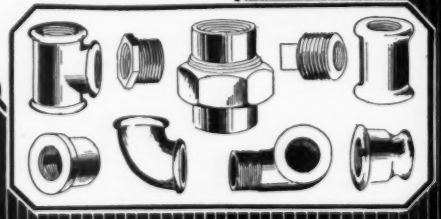
Any installation of sufficient importance to need brass pipe requires the finest Brass Fittings obtainable to make it a success.

Good Pipe Demands Good Fittings

General Brass Pipe Fittings measure up to the most exacting specifications. Machined to a very close gauge, and carefully tested with water pressure, they can be thoroughly relied upon to give complete satisfaction.

The General Brass Line of Brass Pipe Fittings includes Elbows, Tees, Crosses, Plugs, Unions, Couplings, Bushings, Return Bends and Nipples, in all sizes from one-eighth inch to three inches.

Your Jobber Has Them.



GENERAL BRASS COMPANY
(Formed by The McRae & Roberts Co., Michigan Lubricator Co. and Standard-Peninsular Brass Works)
100-146 SOUTH CAMPBELL AVE. DETROIT, MICH.

connection and trap should be installed in such a manner as to retain about 75 per cent of the water in the tank.

4.—Install a Y where the new stack is inserted in the old run, then install a test tee in the new branch and proceed to install the stack, vent piping, etc. To test, remove test tee cover and insert testing plug; also plug all other openings except one, to which attach a pump and gauge and then fill this part of the system to the required pressure 5 or 10 pounds. For a final test, leave plugs at top and bottom, set and connect all fixtures, fill traps with water, insert tube below seal of trap (usually in closet bowl) and blow in tube and raise water 1 inch.

5.—Atmospheric pressure is the weight of a column of air one square inch in cross section. It applies to pump work and wherever syphonic action occurs, the boiling of water, and to vacuum valves and similar appliances.

A Billion-Dollar Market

(Continued from Page 28)

plained to the doctor: "Don't you think, doctor, you've rather overcharged for attending Jimmy when he had the measles?"

"You must remember, Mrs. Jones," said the doctor, "that includes twenty-two visits."

"Yes, doctor—but have you forgotten that Jimmy infected the whole school?"

Perhaps we have all become infected with a critical spirit and overlooked the fact that the plumbing and heating contractor has been practicing what we preached. At any rate, let me set these facts before you:

Through his hands in one year pass:

5,000,000 pieces of enameled ware
3,500,000 pieces of vitreous china ware
250,000 tons of boilers
175,000,000 sq. ft. of radiation, and we do not know how many units of specialties.

Can that man be so poor an outlet who charges up against the nation in a big building year a plumbing bill of $567,000,000 and a heating bill of $420,000,000?

Is his influence negligible when a questionnaire shows that in 78 per cent of the cases of the men answering, the architect's specifications were not final. And no doubt every one of you knows many a plumbing and heating contractor who is writing specifications for an architect—and not always getting the jobs out of that office, either! R. T. Walker, of Voorhees, Gmalin & Walker, designers of the New York Telephone Building, recently wrote: "Too often architects are loath to admit that all design does not emanate from their own offices, but it seems to me the time is past when we can keep craftsmen from having something to say." A significant admission—and note that word "craftsmen."

At a recent convention the president of a successful company in our industry said: "We cast our lot with the plumber—and we believe we picked a winner." The growth of his company bears him out.

Here are some further figures which will interest you. Since about the first of February of this year we have had a clipping service send to us all the newspaper advertisements which appeared over the name of a plumbing and heating contractor. We set a limit in size, of course—we did not include any mere "cards," merely showing a name and address as an advertisement.

In about four and one-half months we tabulated these figures: These advertisements have appeared in 448 newspapers, the total circulation of which was 27,000,000. And that is A. B. C. circulation, gentlemen—circulation which the Audit Bureau of Circulations guarantees to advertisers as being there, and paid for. We have not in-

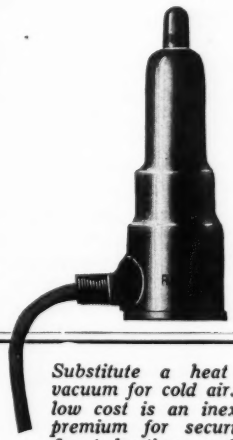
INSURE

100% Heating Efficiency with these Specialties

Richardson Boiler Liquid

Leak Insurance for new and old systems. A permanent guarantee of tight joints and sections. Withstands 200 lbs. pressure. A test will prove its value—send for a few trial quart cans.

Richardson Air & Vacuum Valves



Substitute a heat saving vacuum for cold air. Their low cost is an inexpensive premium for securing the finest heating results with minimum fuel. Complete range for every use.

Richardson Boilerene

Insure a clean heating system in 30 minutes. Softens hard water instantly. Contains no lye, salsoda, caustics, oxalic acid or soap. For new systems, air valves and other cleaning.

THE name "Richardson & Boynton" means as much on the smallest heating accessory as on the biggest battery of boilers. Each specialty is thoroughly tested under operating conditions and is guaranteed by the factory. In using the items shown above, the installer insures a 100% job and assures the everlasting good-will of his customers.

This company believes in utmost protection to the dealer — the logical link between factory and consumer.

RICHARDSON & BOYNTON CO

Manufacturers of "Richardson" "Perfect" Heating and Cooking Apparatus Since 1837

260 Fifth Avenue New York City

New York Utica Newark Philadelphia Boston Chicago Buffalo Minneapolis Cincinnati Pittsburgh Detroit Providence

CHEAP fixtures make you no money. Tell all of your customers about the Improved Madera toilet. It will give them far better service and make you four times the profit on every sale.

MADDOCK'S *Improved*
MADERA

NATIONAL PRODUCTS

A *complete line of*
RADIATORS
BOILERS~SPECIALTIES

NATIONAL RADIATOR CORPORATION

Ten plants devoted to National Service through these Branch Offices and Warehouses:

Baltimore, Md.—2622 Frisby Street; Boston, Mass.—93-97 Oliver Street; Buffalo, New York—259-265 Delaware Avenue.; Chicago, Ill.—2445 No. Keeler Avenue; Cincinnati, Ohio—Spring Grove and Elmira Ave.; Cleveland, Ohio—935 E. 63rd Street; Indianapolis, Ind.—431 W. Georgia St.; Johnstown, Pa.,—221 Central Avenue; New York, N. Y.—55 W. 42nd Street; Omaha, Nebr.—108-112 S. Tenth Street; Philadelphia, Pa.—121 N. Broad Street; Pittsburgh, Pa.—1509 Arrott Building; Richmond, Va.—3032 Norfolk Street; Washington, D. C.—2205 Fifth Street, N. E.

Speakman Artline

fixtures, with their rich, silvery, mirror-bright finish have the beauty and the dependability that people want for their bathrooms today.

SPEAKMAN SHOWERS
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SIMPLEX
FLUSH VALVE

No Water Waste

Simplex Flush Valves cannot be made to waste water by handle manipulation. They shut off automatically in case of a leak in the valve and the four way by-pass allows them to be quickly adjusted from the OUTSIDE.

Further details furnished on request.

The BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

cluded non-A. B. C. circulation, which would add much to that figure. Surely the man who is influencing 27,000,000 people during about one-third of the year alone, is contributing something toward the sale of plumbing and heating products. In addition, about 2,000,000 circulars have been mailed by manufacturers to lists furnished by plumbing and heating contractors in the period of one year. We do not know, of course, what is being done by men who have their own lists and circularize them.

Here is an example out of our own offices. Two months ago we published a newspaper campaign on remodeling. There were ten ads, five on heating and five on plumbing. The first fifty men who have subscribed to that campaign, buying the mats from us at a small cost, with an average circulation of 10,000 in the newspapers in which these ads will be placed, are going to appeal to 5,000,000 people in a period of not over twenty weeks. In addition to that we have enough men at the present moment subscribing to our weekly retail advertising service to be influencing over seven million people a year.

Then take our "Plumbing and Heating Merchandising" section. It runs to eight pages every four weeks, sometimes to ten. We have never had the slightest difficulty in securing sufficient material to fill those pages—or to take care of the merchandising stories which have been running in "Domestic Engineering" for a number of years. Our worry is rather to find sufficient space for all the material that comes to us, lest it grow old awaiting publication.

You may say that these are selected names. At least they are the outstanding figures among contractors. True. But isn't selective selling the only sound basis? The Plumbing and Heating Industries' Bureau, in planning its campaign in Philadelphia, found that there were 1,856 registered master plumbers and heating contractors. But here is what they discovered when they made a survey: 200 are employed by corporations in maintenance work; 810 have no phones, leaving 856. Of these 856, Mr. Kohler recently said that about 350 would be a reasonable expectation of the number possible to develop as good merchandising outlets. Surveys of our own have developed that 35 per cent of the contractors in the United States do 77 per cent of all the business done. There is no good argument against selective selling.

We ask you to draw your own conclusions from these facts. We have had to. We found that we had to revamp our editorial policy in the light of the changes in the retail outlets of the industry. You know the old saying about far pastures. Let me read you one or two clippings:

"In spite of steadily mounting sales figures in the industry, there is a decided feeling of dissatisfaction among dealers." The clipping refers to "profitless prosperity" and adds: "Dealers are largely responsible for the situation."

Here is another:

"How many of the disillusionments experienced by this class of merchants have been due to an inability to develop a proper sales and servicing organization?"

They sound, don't they, as if they came out of a plumbing and heating journal. The first is taken from the automotive industry, the second from a paper which goes to the much-vaunted electrical dealer. Short of the grave, we shall not find perfection in the retailer, any more than we shall find it in our common human nature.

NEED FOR SOLIDARITY

WHEN you are dealing with the human factor, there are some things, gentlemen, which have greater weight than facts and figures. Loyalty is one of them. We are at the turn of the tide; we face a great opportunity with everything, seemingly, in our favor. What

we need now is a united front, a solidarity in our ranks to meet the competition of other industries which are organizing or have organized for the descent upon the consumers' dollars. We need something of that pride in our industry which was in the breast of Stephen Decatur when he said: "My country. May she ever be right. But, right or wrong, my country!"

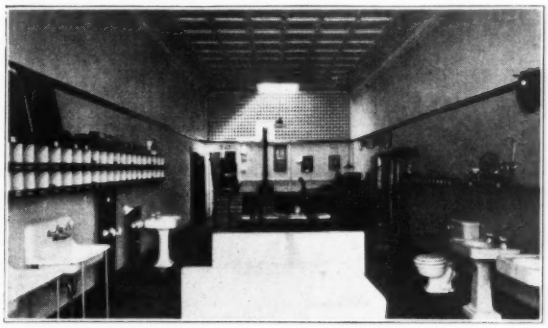
It has happened to members of our organization, not once, but several times, to meet salesmen of the industry on the trains, when they have launched into highly critical remarks concerning the retail outlets of the industry. In one case, the salesman actually related the fact that, in talking with a manufacturer who was about to market a product which he thought should be distributed through the plumbing and heating contractor's hands, he, the salesman of our industry, had discouraged that manufacturer and advised him to look elsewhere for outlets for his products.

Gentlemen, almost every day—perhaps at this very hour—some one of our organization is in conference with a manufacturer, trying to convince him that in the plumbing and heating industry he has the logical outlet for his product.

We have held at least a dozen important products in the industry when their makers had considered looking to other fields for distribution.

A closer study of actual conditions ought to engender faith in the ability of the plumbing and heating contractor to market the products of the industry. They will need help, certainly. But you men, with your organization here, represent an instrument which can accomplish great good in this direction. You are contacting with hundreds of contractors every week. I have no intention of suggesting to you the proper method for performing your duties. Your companies place in the pages of the trade publications sound merchandising ideas; how you may carry them to the contractor, you know better than I.

I spoke of loyalty a moment ago. At a recent meeting, presided over by the president of a state association of master plumbers—and an association which is alert and active—that president indicated the esteem in which he held the salesmen of the industry. He was speaking in all sincerity, and he is a man who may claim some little success. This is what he said: "You salesmen are like intellectual giants to us, the plumbing and heating contractors. You can do more with our members who need help than we can—and we ask that help."



A view of the attractive showroom of Walker & Son, Charlotte, N. C.

I think that was a fine compliment, as it was a ringing challenge to your willingness to help the plumbing and heating contractor to take full advantage of this turn of the tide—this really great opportunity which is before the industry.

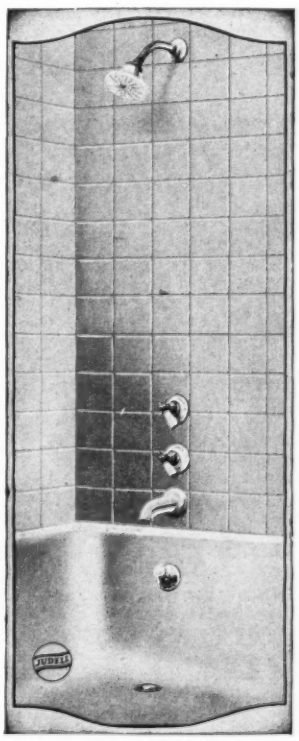
The
MIXO
and the
BADGER WASTE
"The Two Popular Items"

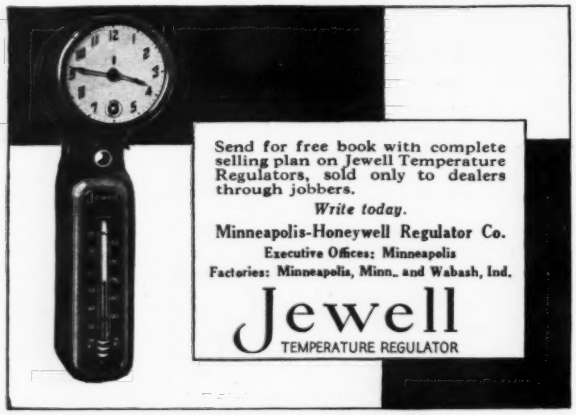
JUDELL

Sold by all Leading Jobbers

MANUFACTURED BY
MILWAUKEE FLUSH VALVE CO.
MILWAUKEE U. S. A.

Ask for Catalog FS-12

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Every time you sell a Whale-bone-ite Seat you make three times the profit possible on a staple job. Don't waste time soliciting orders for cheap seats at a minimum profit when a little salesmanship will bring you an order for a Whale-bone-ite Seat at a real profit. And the Whale-bone-ite sale means a satisfied customer.

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THE BRUNSWICK-BALKE-COLLENDER COMPANY · CHICAGO

Not How Cheap
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Sewage Disposal is vital to health. Don't risk for yourself or your customers anything but the best. San-Equips have been dependable for ten years.

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Approved by the best Health Authorities everywhere. Sturdily built of rust-resisting copperoid iron to give long, satisfactory service. Simplicity of design means freedom from service troubles. A complete unit, no assembling of parts, a better installation from every angle. Write now for complete information.

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Makers also of San-Equip Self-Drain Waterless Toilets

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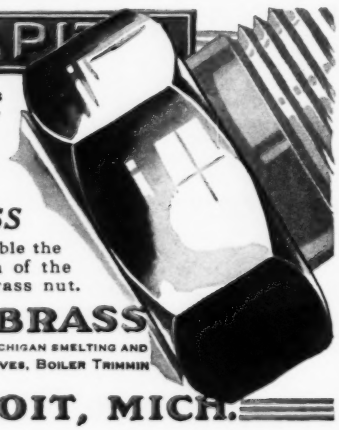

Capitol radiator valves and elbows are now equipped with—

UNION NUTS
of
FORGED BRASS

—they have double the tensile strength of the ordinary cast brass nut.

CAPITOL BRASS
DIVISION OF MICHIGAN SMELTING AND
MANUFACTURERS OF BRASS VALVES, BOILER TRIMMIN

DETROIT, MICH.

Legal Questionnaire

Answered by "The Judge"*

Liability for Partnership Debts?

Editor, "Domestic Engineering":—If you can do so, will you kindly suggest a written form of agreement between two plumbing and heating contractors who wish to become partners? One of the partners owns real estate jointly with his wife, while the other does not own any real estate. What can the partner who owns real estate do to protect his interest in the real estate from becoming attached on account of any possible judgments against the partnership, because of the fact that either partner is liable for the debts of the other?

New Jersey. L. J. H.

Answer:—Answering your latter question first, there would seem to be three ways in which you can protect the real estate of one of the partners. The first, and perhaps the simplest way, is to have the proposed partner deed his interest in the real estate absolutely, to his wife, taking care to observe the laws governing conveyances from husband to wife. In such a case, it would be well, also, to seek the advice of an attorney, so that all precautions may be taken against the later claims of creditors of the partnership, that the husband has conveyed away his property to defraud them. Usually, it is legal to make a conveyance of this kind to a wife, to remove property from the hazards of business, as to all creditors who become creditors after the conveyance is made; particularly if there are no circumstances in the situation upon which a creditor might base a claim that he had been misled into giving credit to the partnership.

Also, as you probably know, property of any kind owned by a partner, is liable to be taken for partnership debts; real estate is not the only property which is liable to be taken for partnership debts.

A second way of relieving the property of one partner from the liability for debts of the partnership, is by the formation of a corporation. This is by far the surest method of relieving the individual partners from liability for business debts. In addition, it is also the best way in which two or more business men may join in a business enterprise, not only from the standpoint of their individual liability for debts, but also from the standpoint of the continuation of the business in the event of the death of one of the partners or withdrawal of one of the partners from the business for any other reason. The corporate form of conducting a business has some disadvantages, because of the state and federal returns which are required; but these disadvantages are in most cases actually advantages, for they compel the business to make periodic statements or returns which give the members of the firm a clear idea of just how their business is progressing. Then, too, in the event of the insolvency of the business, there is never any question about the individual liability of the members of the firm. If a business is unincorporated and insolvency comes, there is almost always a question raised about the individual liability of the various members of the firm, which is troublesome, even though no individual liability beyond the actual assets of the business is proved.

A third method of conducting a business is by means of a so-called limited partnership. Under your laws, a lim-

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*Every effort is made to the end that these answers may be authoritative. However, we cannot assume any responsibility because of the very nature of the service, which is rendered without a personal interview.—Editor.

ited partnership is a partnership formed by two or more persons, having as members one or more limited partners and one or more general partners. The limited partners as such are not liable for the obligations of the partnership.

In your case, where you are to have but two partners and where, I assume, both of you desire to take an active part in the business, this would not be a very satisfactory way of doing business, for the reason that the name of the limited partner cannot appear in the firm name and also, the limited partner cannot engage actively in the conduct of the business without incurring all the obligations of a general partner.

In the case of a limited partnership, a certificate must be signed and sworn to and filed in the office of the county in which the principal place of business of the partnership is situated, in which certificate, among other things, must be set out: The name of the partnership; the character of the business to be conducted; the names and places of residence of each member, general and limited partners being respectively designated; the amount of cash and the description of and agreed value of other property contributed by each limited partner; additional contributions to be made by the limited partners and the time when they are to be made, etc.; the time when the contribution of the limited partner is to be returned to him; and the share of profits and the compensation to be received by the limited partner.

The contributions of a limited partner may be in cash or other property, but not services.

The surname of a limited partner cannot appear in the partnership name unless it is also the name of a general partner. A limited partner whose name appears in a partnership name contrary to this statute is liable as a general partner to partnership creditors who extend credit to the partnership without actual knowledge that he is not a general partner. A limited partner shall not become liable as a general partner unless, in addition to the exercise of his rights and powers as a limited partner, he takes part in the control of the business.

You will see, from the limitations imposed upon a limited partner, that that form of conducting your business would probably not fit your needs. Such a form of partnership would be useful where two or more partners are conducting a business, wish to raise more capital, and take into partnership some man with money, who is willing to make a loan to the business, but does not wish to engage actively in the business or become liable for more than he has put into it.

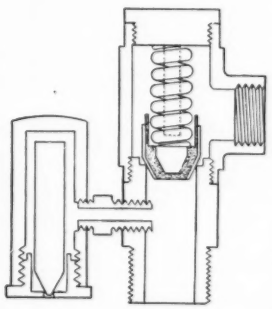
In your question you use the words: " . . . because of the fact that either partner is liable for the debts of the other." It is probable that you did not mean to put it exactly that way, for one partner is not usually liable for the private debts of the other partner, contracted outside the partnership business, except in so far as the partner's individual creditors may take his interest in the partnership and apply it to their claims.

A partnership, in the vast majority of cases, is not a very satisfactory method of conducting a business, for reasons in addition to the law making a partner's individual property liable for partnership debts. Partnerships start off with the enthusiasm of any new enterprise; but sooner or later disagreements and vexations creep into the most harmonious combinations. One partner finds himself doing more work and using better judgment than another partner, and becomes dissatisfied; and when such a situation exists the business suffers and usually fails to function. Then comes the settlement of partnership affairs, with the inevitable bickering of business men who are at odds. It is my experience, speaking generally, of course,

A New **DONNELLY** Product

The EDDY Pressure, Temperature and Vacuum Relief Valve is unique—BECAUSE—it performs these three functions WITHOUT WASHERS of any kind.

Seats and plungers on pressure and vacuum are METAL to METAL.



Each part of washer is a distinct unit.

QUALITY of material and WORKMANSHIP the very best.

The EDDY Valve is adjusted for service. May also be had in separate form for Pressure Relief, Pressure and Vacuum, and Pressure and Temperature.

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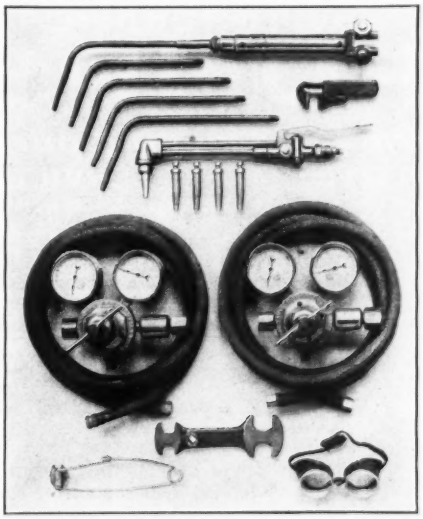
We have made up this combination outfit No. 8888 for your pipe cutting and welding work. It meets your every pipe fitting need, at low cost.
WRITE TO THE NEAREST DISTRICT OFFICE FOR INFORMATION



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NIEDECKEN SHOWERS
PATENTED

The face of the Shower Head is easily removed for cleaning.

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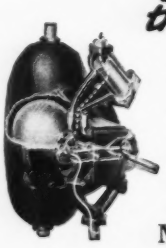
MANUFACTURERS SINCE 1855.
MILWAUKEE, U. S. A.

BURKS
SUPER-TURBINE
PUMPS
"Only one moving part"
— A LIFE-TIME OF SERVICE! —
Dealers: Send for No. 83 Bulletin!
DECATUR PUMP COMPANY
632 E. Cerro Gordo St., Decatur, Ill.

It never forgets the boiler water line



People forget to turn feed water on or off—but this new self-cleaning duplex feeder is built to remember *always*. The self-cleaning feature takes it out of competition. Write for new booklet.

McDONNELL & MILLER
400 N. Michigan Ave., Chicago
Self-Cleaning Duplex Feeder

that a business man is better off when he is master of his own business even though it is a smaller business than might be possible by the joining of forces with another business man; at least as to partnerships.

Although it may be argued that the corporate method of doing business, where two members of the firm are equally interested, is liable to the same complaint, still, if a corporation does not make a go of it because of the disagreement of two parties equally interested, it is always much simpler to arrive at a settlement of the situation. If two stockholders in a corporation disagree, one can buy the other out. This, in the case of a corporation, is much simpler than winding up the affairs of a partnership, and has the advantage that the business continues on as before, as far as the firm name is concerned. Another disadvantage of a partnership is the disintegration which befalls a business when a partner dies. The partnership ends and the surviving member or members have to start all over again building up a business, credit, etc.

I am setting out below a short form of a partnership agreement which embodies the essential features of such agreements, without great detail. To protect yourselves, you should secure the advice of an attorney and have him go into all the details of your plans, so that both of you may start off with the protection due each of you. In general, a partnership agreement should contain at least the following provisions:

ARTICLES OF AGREEMENT, made this ..... day of ....., 1928, by and between Jones and Smith.

The parties above named hereby agree to associate themselves together as partners under the firm name of Jones & Smith, for the purpose of carrying on the business of plumbing and heating in all its branches, the said partnership to commence on the ..... day of ....., 1928, and to continue for the term of ..... years.

And it is agreed by and between the parties to these presents that at all times during the continuance of their said partnership, they and each of them will give their attendance and to the utmost of their skill and power exert themselves to their joint interest, profit, benefit and advantage, and will truly employ, buy, sell and merchandise with their joint stock, and the increase thereof, in the business aforesaid; and also that they will at all times during the continuance of their said partnership, bear, pay, and discharge equally between them all rents and other expenses that may be required for the support and management of the said business; and that all gains, profits and increase which shall come or arise from or by means of their said business shall be divided equally between them and all loss that shall happen to their said joint business shall be borne and paid equally between and by them.

And it is further agreed by and between the said parties that there shall be kept at all times during the continuance of said partnership, full and correct books of account, wherein each of said partners shall enter, as well all money by them or either of them received, paid, laid out or expended in and about the said business, as also all goods, wares, commodities, and merchandise by them, or either of them, bought or sold by reason or on account of the said business, and all other matters and things whatsoever to the said business and the management thereof in any wise belonging, which said books shall be used in common between the said partners, so that either of them may have access thereto without any interruption or hindrance of the others.

And the said partners, once in each year, or oftener, if necessary, shall make and render, each to the other, a full and correct inventory and account of all profits and increase by them, or either of them, made, and all losses by

them, or either of them, sustained; and also all payments, receipts, disbursements and all other things by them made, received, disbursed, acted, done or suffered in their said partnership and business, and upon the rendering of such account shall clear, adjust, pay and deliver each to the other their just share of the profits so made, or losses so incurred, as aforesaid.

And the said partners hereby mutually agree to and with each other that, during the continuance of their said partnership, neither of them will endorse any note or otherwise become surety for any person or persons whomsoever, without the consent of the others of said partners. And at the end of said partnership the said partners will make, each to the other, a full and correct account of all things relating to their said business, and in all things truly adjust the same; and all and every stock and stocks and equipment, as well as the gains and increase thereof, which shall appear to be remaining, either in money, goods, wares, fixtures, equipment, debts, or otherwise, shall be divided equally between them.

In witness whereof the said parties hereto set their hands and seals this ..... day of ....., 1928.

I would call your attention to the fact that if you form a limited partnership, which I have first described above, you will have to secure the services of an attorney to draw up the necessary certificate for filing. Probably, you might have also a partnership agreement between yourselves, in addition to the certificate required by law, which would contain provisions mutually agreed upon, as long as such provisions were not contrary to the provisions of the certificate which you file.

Analysis of the Work of the A. S. H. V. E. at Its Midsummer Meeting

(Continued from Page 43)

provision for ventilation, this does not lessen the necessity for it. In many garages, fires are necessary throughout the winter only once or twice a week. Adequate ventilation in connection with such a heating system would, of course, be more expensive.

It was stated in the discussion that tests are to be made in the city of St. Louis and that data on the heating and ventilating of garages based on these tests will be presented at the 1929 winter meeting of the A. S. H. V. E.

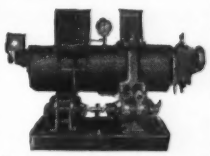
FRIENDS OF THE SOCIETY

AMONG the friends of the society who were present and who were asked to address the meeting were Henry B. Gombers, secretary for many years of the Heating and Piping Contractors National Association; T. J. Duffield, secretary, New York Commission on Ventilation, who hopes to be present at a future meeting of the society, some data now being compiled in the school ventilation studies of the New York Commission; Franklin Hardinge, president of the Hardinge Bros., Inc., makers of oil burners in Chicago, who addressed the group on the subject of oil burners and contact of the oil burner industry with the heating trade; F. W. Herendeen, secretary of the National Boiler and Radiator Manufacturers' Association; William G. Bergner, secretary of Plumbing and Heating Industries Bureau, who stated that various groups in the heating industry are too unfamiliar with what the others are doing, and called attention to the fact that the Plumbing and Heating Industries Bureau is organized to further the interests of the heating trade; C. J. Segeler of the American Gas Association, New York, who presented some very interesting figures on gas heated homes, and Harry

JENNINGS Vacuum Heating Pumps remove the condensation and air from the return line of the vacuum steam heating system, discharge the air without back pressure direct to the atmosphere, and return the water under pressure to the boiler.

In standard sizes, from 2,500 to 300,000 sq. ft. equivalent direct radiation. For continuous operation, or with automatic control.

Write for Bulletins Nos. 71 and 25



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NASH ENGINEERING CO.
41 Wilson Rd., So. Norwalk, Conn.

Jennings Pumps

YOUR FITTING PROBLEM IS SOLVED
when you say
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SQUARE Pipe — "GEE" Fittings
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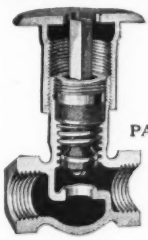

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Can be reseated or repaired without disturbing wall or floor. Has wall or floor adjustment of over 1 inch. Furnished with fibre washer for gas, composition washer for water, vapor or steam.

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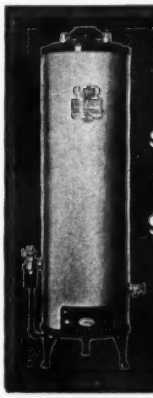

$66 to $145

William M. Lawn, Rochester, New York, Plumber, Says:
"We have installed EverHot Heaters for the past four years and have yet to receive a complaint on their performance. We feel that every EverHot which we install is our salesman for additional installations.
You may use this letter of appreciation in any way you may choose to increase your sales and to make the EverHot better known and appreciated."

EverHot Heater Co.
Detroit, Michigan
Branches and Sales Offices in 44 Cities in United States and Canada

"CLIMAX CELLAR DRAINERS
For a Dependable and Permanent Drain"

Climax No. 1
CELLAR DRAINER

Economy of operation is the big thing to look for in celler drainers and in this the Climax excels because it uses less LIVE water to operate it, yet notwithstanding this it pumps more sump water.

Don't forget that Climax Test Plugs are made for every conceivable kind of pipe test

THE C. M. KEMP MFG. CO.

MANUFACTURERS OF
PLUMBERS' SPECIALTIES
405-415 E. OLIVER ST.
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Pacific Coast Agents
WM. P. HORN CO.
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New England Agent: ROBT. McKEOWN JR., 46 Cornhill, Boston, Mass.
JOHN W. STILES & SON, 700 Prospect-Fourth Bldg., Cleveland, Ohio
Territory: Ohio, Indiana, Kentucky and City of Detroit, Mich.
W. F. HARPER, 3733 Lindell Blvd., St. Louis, Mo.,
Territory: Texas, Okla., Kansas, Missouri, Minnesota, Wisconsin
H. F. WILLIS, 520 Securities Bldg., Des Moines, Iowa.
Territory: Iowa, Nebraska, Rock Island, Ill., Moline, Ill., Kansas City, Mo.

A greater volume

The Red Top Relief Valve Model No. 2 makes possible a greater volume of heating equipment business for you. It makes possible the Red Top Pressure System of hot water heating, a system which you can install—as your own—at a real profit. A Red Top Relief Valve Model No. 2 and an air-tight tank are all the special equipment needed to install this highly efficient and economical system.

Red Tops are approved by America's foremost testing organization — the Underwriters' Laboratories and by State and Municipal Boards of Water and Boiler Inspection. May we send you descriptive folders?

Red Top Relief Valve Model No. 2, Approved by the Underwriters' Laboratories, Inc.

Neptune Meter Company
50 E. 42nd St. New York City, N. Y.
Branch Offices in Principal Cities

Red Top Relief Valves

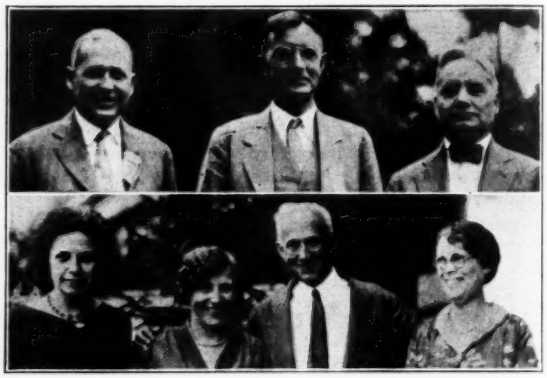
M. Hart of Chicago, although a past president of the A. S. H. V. E., was presented as the 1928 president of the Heating and Piping Contractors National Association.

A telegram of condolence was sent to Alfred Kellogg, chairman of the boiler ratings committee, on account of his illness which prevented him from attending this meeting. A telegram of greetings was received from W. H. Driscoll, New York, past president, who expressed regrets that he could not attend.

Memorial resolutions were passed relative to the death of Walter S. Timmis, president of the society in 1919 and consulting engineer of Jamaica, N. Y., and John H. Kinealy, charter member and past president of the society and consulting engineer for many years in St. Louis, Mo.

A. S. H. V. E. ENTERTAINMENT

THIS mid-summer meeting of the society was a sane combination of work and play. The work proceeded with a smoothness and despatch that would be the envy of many societies. The play was pursued with equal



Top row: E. B. Royer, consulting engineer, Cincinnati, Ohio; H. P. Reid, research engineer, Universal Portland Cement Co., Chicago; W. B. Crawford, James P. Marsh & Co., Chicago. Bottom row: Mrs. M. I. Weil, Chicago; Mrs. F. H. Gaylord, Chicago; C. V. Haynes, Hoffman Specialty Co., New York; Mrs. Homer R. Linn, Chicago

vigor,—golf, bridge, tennis, bathing, horseback riding, trips to nearby caves, dancing, etc., were some of the amusements. The members of the Illinois Chapter were elated over the winning of the research cup by one of their members, L. J. Pitcher of the Illinois Engineering Company, Chicago. The first bridge prize was won by Mrs. John F. Hale, Chicago. Prizes were presented at the banquet with Prof. J. D. Hoffman of Purdue University as toastmaster.

Resolutions of appreciation were presented to the hotel and others instrumental in making the meeting a success. Particular emphasis was placed upon the resolutions which mentioned the efficient handling of the affair by the arrangement committee under the direction of C. R. Ammerman, consulting engineer of Indianapolis. S. E. Fenstermaker, S. E. Fenstermaker & Company of Indianapolis, as chairman of the golf committee and distributor of the golf pennants and other prizes at the banquet, handled these various duties with an efficiency and in a happy manner that bespoke long experience.

One evening was devoted to the motion picture entertainment provided by "Domestic Engineering" which consisted of the presentation of films taken at previous conventions.

Other papers presented at the convention will be commented upon in future issues of "Domestic Engineering."

"A MAN IS WORTHY OF HIS HIRE"

TO THE HEATING FRATERNITY—

Why have not the sales of radiator heating kept pace with the rapid and enormous growth of the automobile, house refrigerator, washing machine and other industries?

While the sales and marketing problems, facing these and our industry differ very materially, in many respects, I shall touch on only one outstanding difference which should make the answer to the above question obvious to us all.

THERE IS A DIFFERENCE

Because it has been found possible to rapidly build up profitable sales for a flat iron, or some other household article, through house-to-house canvases, by "door-bell ringers", it does not necessarily follow that the same methods would prove profitable, or satisfactory, to a good physician, or attorney, in building up his clientele.

Heating and ventilating is as much of a profession as medicine or law, and the sooner, we, the manufacturers of heating equipment, admit it, the better it will be for the buying public and the heating business.

The sales problems facing the manufacturer of automobiles and those manufacturing heating equipment differ in at least one respect.

The automobile manufacturer can, himself, build his machine complete, ready for use, by the ultimate purchaser. He can surround himself with his own engineers and craftsmen, keeping them under his own supervision and management. His own institution can assume the sole responsibility for seeing that the complete machine is designed and built in accordance with his specifications.

If the public were obliged to purchase the automobile in parts, the engine, chassis, body, carburetor, etc., from different manufacturers, have all these parts incorporated in a design, prepared by some independent automotive engineer, to be put together by another firm of assemblers or contractors, then the problem might somewhat resemble ours, with sales and growth no more rapid than our own.

A boiler, radiator or valve, alone, does not particularly interest the purchaser. What he chiefly desires is heating results from a complete heating plant. He wants heat when he wants it, where he wants it, in the quantities desired and under the same control he has over his automobile.

The manufacturer of heating equipment may and undoubtedly does build his products as well as the automobile manufacturer builds his, but before his products can properly serve the public, the architect, engineer, contractor and perhaps the manufacturer of other equipment have a certain part to play in the performance and none of them are in the control of the manufacturer, as they are in the present-day automobile business.

WHAT CAN THE HEATING FRATERNITY DO TO OBTAIN ITS SHARE OF THE BUSINESS?

Shall we improve our products, encourage better installations and deliver better and better service to the purchaser—or,

Shall we endeavor to meet competition with other so-called "out-of-date" or "inadequate" heating methods by encouraging, cheaper, and, therefore, "inadequate" radiator heating systems?

Shall we encourage heating contractors to lower their estimates on radiator heating by leaving off boiler and pipe covering, room thermostats, etc., where such are essential to the adequate and economical operation of the plant?

Shall we instruct them, in order to save labor and piping, to place radiators on the inside, instead of the outside walls, even though they should be placed in the latter position?

Shall we advise them to estimate on cheaper equipment, **so long as it is not of our own make**, so that they may come nearer the prices at which "out-of-date" or "inadequate" heating is sold in order to find a quick outlet for the sale of our particular product?

Undoubtedly, the heating fraternity's answer to these questions is —NO—unless we wish to wreck our industry.

Have automobiles sold so rapidly because they cost just a little more than horses and carriages? Has the public purchased house refrigeration plants because they cost just a little more than ice boxes? Does the lady of the house buy a washing machine because it costs only a little more than a tub and washboard? NO. These new devices cost more.

The consumer will buy anything on which he gets his money's worth. So let us make our radiator heating plants worth his money.

IS THE PUBLIC BEING MISINFORMED?

If the public seems to think that it can purchase a steam or hot water heating system for a six or eight-room residence at $1000.00 and more, I do not believe its estimate is so far off—provided the public wants good "adequate" radiator heating, which I think it does.

What the public knows as a six-room residence generally requires eight or ten radiators and an eight-room residence requires ten or twelve, if we are to properly warm the halls, baths, pantries, etc., and if I know anything of complete heating costs, such heating plants cannot possibly be installed complete and in a thorough manner for much less—if they are to adequately serve the owner and provided the contractor is to make a fair profit in his work, and, further, **considering prevailing costs of heating equipment.**

At any rate, even if the manufacturer or his jobber has any control of prices to be charged the consumer, by the contractor, it seems to me that **the contractor is worthy of his hire** and that we should encourage the installation of good, efficient radiator plants **at fair prices.**

HOW TO LOSE BUSINESS

In my judgment, the one procedure that could lose more sales for radiator heating than any other, would be the sale and installation of cheap, competitive and consequently "inadequate" plants that even then would cost the public more money than other so-called "inadequate" methods and perhaps serve less efficiently. As every salesman and heating contractor has said, at one time or other, one bad installation will do more harm to his business than ten good ones will do good.

POSSIBILITIES FOR GREAT GROWTH

I agree that this industry has possibilities for great growth and expansion, but not, necessarily, through the same procedures that may be employed in other business.

I am also a thorough believer in advertising and selling, but let us not make the error of offering something for sale that we can not deliver. Let us not attempt the impossible, of furnishing good "adequate" heating plants at the prices at which "inadequate" plants can be bought.

SPEAKING FOR OURSELVES

It seems to me that if we are to support intensive advertising campaigns and "door-bell ringers", that we must first be certain that "our own house is in order". Advertising can not eventually support any but an unquestionably meritorious project.

I am only speaking for myself, my company and its policies when I suggest that we, the manufacturers of heating equipment, give careful consideration to the following factors involving our problem.

OUR RESPONSIBILITY TO THE ARCHITECT

Building and chimney design and construction play as important a part in heating adequacy and fuel economy as heating equipment itself.

It has been said, many times, by men who have had experience, that if they were to build again, they would erect the heating plant first and construct the building around it.

This has been only one way of stating that their previous building had been so designed and erected that it was difficult to apply a heating plant that would adequately and economically warm it and that responsibility for heating results rested as much with the architect as with the heating engineer.

In fact, when this country entered the European War, an architect was heard to suggest that the heating engineer could do a great service for his Country by considerably improving his heating systems so as to conserve the nation's fuel supply. The engineer's retort was that the architects in one state could do more, in this respect, than all of the engineers in the country could do by constructing their buildings to retain the heat instead of losing it as fast as the best heating plants could deliver it.

The architect is a big factor in seeing that the manufactured heating plant is properly designed and that the equipment can and will be properly installed. No matter how well it is built, if improperly applied or if installed under improper building conditions, it can not adequately serve the public.

Therefore, let us co-operate with the architect in every possible way. Let us not encourage improper installations simply to force sales.

THE CONTRACTOR AND HIS PRICES

My experience has shown that good contractors, like good manufacturers, recognize their responsibilities. However, destructive price cutting generally injures the cause. When contractors are obliged to accept work, at prices that are too low, they are forced, in order to prevent loss, to "dicker" with manufacturers, **resulting in the selection of cheaper and inferior products to the ultimate grief of the buyer of radiator heating and the industry as a whole.**

THERE IS NO MYSTERY AS TO THE MERITS OF RADIATOR HEATING

Certainly, steam and hot water heating systems have a great many fundamental advantages over other methods—better and more even heat distribution—much longer life and consequent lower final cost—economy of operation—superior life and health protection and saving of building space. On these and other points the public should be informed and if it is convinced, our industry need not fear inferior or inadequate competitive methods even though they may be purchased by the public at a much lower cost.

Failure to appreciate the importance of good engineering in the design of complete heating plants; or—

Failure to discourage, at all times, the improper installation of heating equipment; or—

Any disposition to encourage destructively low prices which can not carry good workmanship and service, in order to find a quick outlet for the sale of our products, will not foster the growth of our industry.

A MAN IS WORTHY OF HIS HIRE

A man is worthy of his hire, be he manufacturer, architect, engineer or contractor and so long as our sales problems incorporate **us all**, let **us all** cooperate, with equal consideration **for all.**

Yours for building the radiator heating industry on a solid, substantial foundation for a future growth consistent with its merits.

HERMAN W. NELSON
President

OUR POLICY—

We cannot, nor do we hope to always meet our competitors' prices, because we expect to indefinitely, continue our policies, maintained for the past twenty years; that—

Of building the best equipment we know how to build—

Of sincerely co-operating with the architect, engineer and contractor, to prevent improper designs or the installation of our equipment under improper conditions, even though we lose sales—

Of encouraging adequate compensation for all members of the fraternity, including those architects, engineers and heating contractors who perform good work and deliver good service to the public—and we respectfully solicit their patronage.

THE HERMAN NELSON CORPORATION, *Moline, Ill.*

Builders of Successful Heating and Ventilating Equipment for over 20 Years

Sales and Service

BELFAST, ME.	BUFFALO	CHARLOTTE, N.C.	CLEVELAND	INDIANAPOLIS	GREEN BAY	ATLANTA	KANSAS CITY	SPOKANE	VANCOUVER
BOSTON	PHILADELPHIA	GRAND RAPIDS	COLUMBUS	CHICAGO	MINNEAPOLIS	MEMPHIS	OMAHA	PORTLAND	TORONTO
NEW YORK CITY	SCRANTON	SAGINAW	CINCINNATI	DES MOINES	ST. LOUIS	DALLAS	DENVER	SEATTLE	WINNIPEG, MAN.
UTICA	PITTSBURGH	DETROIT	TOLEDO	MILWAUKEE	BIRMINGHAM	EMPORIA	SALT LAKE CITY	SAN FRANCISCO	CALGARY, ALTA.

Our Contribution
to the art of Heating & Ventilation

FIVE YEARS AGO when the Herman Nelson light weight, compact, indestructible radiator was placed on the market, it was immediately accepted as the greatest advance in the art of Heating and Ventilation in a generation. It has made possible heating and ventilation dependability and performance hitherto unattainable.

The Herman Nelson Wedge Core Radiator is an exclusive feature of all Herman Nelson Heating and Ventilating Products and accounts for their unequaled performance.

HEATING · VENTILATING · COOLING · DRYING · CONDENSING

UNIVENT

for the ventilation of schools, hospitals, offices and other buildings presenting an acute ventilating problem.

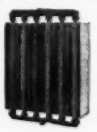
HERMAN NELSON
Invisible
RADIATOR

... supersedes all previous radiators, radiator cabinets or enclosures. Occupies no room space and makes possible any desired decorative scheme or furniture arrangement. Indestructible in service.

THE HERMAN NELSON
hiJet
UNIT HEATER

It operates at steam pressures from 1 to 150 lbs., and offers the better and more economical way of diffusing heat in Factories, Railroad Shops, Roundhouses, Mills, Warehouses, Garages, Gymnasiums and Industrial Buildings.

Herman Nelson
Radiator Sections
for Blast Heating and Cooling



Indestructible, operating at any steam pressure from 1 to 150 lbs., non-corrosive and leak-proof.

May be arranged in banks to solve any special problem of heating or cooling.

THE HERMAN NELSON CORPORATION · *Moline, Illinois*

Builders of Successful Heating and Ventilating Equipment for over 20 Years

Sales and Service

BELFAST, ME.	BUFFALO	CHARLOTTE, N. C.	CLEVELAND	INDIANAPOLIS	GREEN BAY	ATLANTA	KANSAS CITY	SPOKANE	VANCOUVER
BOSTON	PHILADELPHIA	GRAND RAPIDS	COLUMBUS	CHICAGO	MINNEAPOLIS	MEMPHIS	OMAHA	PORTLAND	TORONTO
NEW YORK CITY	SCRANTON	SAGINAW	CINCINNATI	DES MOINES	ST. LOUIS	DALLAS	DENVER	SEATTLE	WINNIPEG, MAN.
UTICA	PITTSBURGH	DETROIT	TOLEDO	MILWAUKEE	BIRMINGHAM	EMPORIA	SALT LAKE CITY	SAN FRANCISCO	CALGARY, ALTA.

Isometric for Tall Buildings

(Continued from Page 24)

lustrations the work appears very distinct.

There is one thing we should mention—that while Memorial Hall is located on the fourteenth floor, nevertheless at this same level several vent lines and the tower soil stack terminate with open ends.

Accompanying the plumbing plans for the Nebraska state capitol, there was an elevation of the tower toilet rooms, which we reproduce in Fig. 6.

It goes without saying, that this elevation is far easier to make than Figs. 3, 4 and 5. In a way, it shows the same thing as shown in the three illustrations, but in a much less true and thorough manner.

There are many instances in which Fig. 6 would answer the purpose just exactly as well as the three isometric elevations. If it is the general principle and general idea of the method of connections that is desired, then Fig. 6 will answer the purpose in an entirely satisfactory manner, but if exact information is required, then nothing short of an isometric elevation will answer—that is, if it is desired to tell the whole story in just one drawing.

ONE ISOMETRIC COMPARABLE TO THREE MECHANICAL DRAWINGS

AS WE have many times pointed out, the isometric elevation shows in the one drawing all that is shown in a set of three mechanical drawings, known as plan, front elevation and side elevation, and, moreover, the isometric is much more easily understood, especially to the untrained eye.

Recently there came to us a very interesting elevation from the Quinn Plumbing Co., Inc., of Miami, Fla., W. R. Barnett, superintendent, which will fit in nicely by way of further illustrating what we have in mind to say on this general subject.

This elevation showed the plumbing installation for the Dade County Agricultural High School in Miami. The drawing was so large that we have split it into two separate elevations, shown in Figs. 7 and 8.

In the case of an isometric elevation, the three dimensions, length, breadth and height, are shown by lines drawn at equal angles to each other—that is, at 120 degrees, one to the other.

In the case of Figs. 7 and 8, the three dimensions are shown by vertical and horizontal lines showing height and width, and the third dimension, depth, is shown by a line drawn at 60 degrees with the horizontal. There does not seem to be any definite name given to this particular style of drawing. By some it is known as isometric, but that is wrong. We think the terms mechanical perspective or semi-isometric are good ones to use.

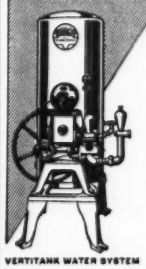
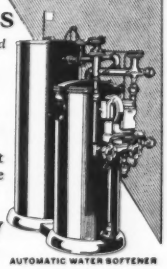
The chief reason for presenting these two elevations is to make our story complete, and to allow us to sum up our conclusions on this subject.

What is a drawing for? The answer is that a drawing is made for two purposes, to describe the complete shape of the thing illustrated, and to provide working information, or dimensions from which the thing can be constructed. A plumbing elevation is most often made to describe the plumbing system, rather than to provide working dimensions. That being the case, our opinion is that generally speaking, where the drawing is to be simply a picture showing the general features of the work, it is good judgment to select that kind of drawing which will show the work in question with entire clearness for the purpose required. If either of two types of drawing will answer the requirements equally well, we would naturally select the drawing that would require the least time in making.

P. B. F.
Brass Fittings

TESTED—
UNDER WATER
EVERY ONE OF THEM
PHOENIX BRASS FOUNDRY
Irvington, New Jersey

Watrous
Patent Plumbing Fixtures and Duojet Water Closets
A LINE representing the most advanced ideas in sanitation. Economy of operation and ease of installation. Duojet Closets—Flush Valves—Self-Closing Basin Cocks—Combination Lavatory Fixtures—Pop-Up Wastes—Liquid Soap Fixtures, etc.
Manufactured and Sold Exclusively by
THE IMPERIAL BRASS MFG. COMPANY
1231 West Harrison St CHICAGO

DURO
Water Softeners
Automatic Semi-Automatic Hand Operated

Electric Water Systems
For Shallow or Deep Wells
Filters + Septic Tanks
Let us send you new Price Sheet and all details on Duro Finance Plan which makes sales easy.

The Duro Company
800 Monument Ave. Dayton, Ohio
VERTITANK WATER SYSTEM
AUTOMATIC WATER SOFTENER

RICHMOND
PRODUCTS.....
LAUNDRY TRAY LEGS
(Alberene Pattern)
These Laundry Tray legs of the Alberene pattern are the good old products that have proven themselves time and again. Don't take a chance when you know you can get the best there is by buying equipment you are aquainted with
Write for our catalog
RICHMOND
Foundry & Manufacturing Co.
RICHMOND, VIRGINIA

"A DEPENDABLE SOURCE OF SUPPLY".....

Consequently, if we were called upon to make elevations of the plumbing installation for a large building, we would think it entirely legitimate to use any type of drawing that would best handle the different details, with the least labor. By this we mean that in making such a set of elevations we would not hesitate to make any assortment of elevations, comprising straight mechanical views, semi-isometric and straight isometric. This may not sound sufficiently orthodox for some of our readers, but we believe it to be good common sense.

The time was, many years ago, when it was considered entirely legitimate in a draughting room, for a draughtsman to use all kinds of time in making fancy illuminated borders and titles for his drawings, in shading the drawings, etc. Such work could not possibly have any place in today's program, however, for things commercial are figured nowadays on a competitive, common-sense basis—right off would come the question as to what the fancy work would bring in, in the shape of dollars and cents. And in this same way we would figure the plumbing elevations for a big building—the chief thing is to make those drawings tell the whole story with entire clearness, and if they do this, "we should worry" as to just what type of drawings they are.

SOME HANDY HINTS ON ISOMETRIC

IN isometric and semi-isometric work, many little tricks can be used to help make the work clearer and more distinct. It will be of value to point to some of these in Figs. 3, 4 and 5. In Fig. 4, for instance, a broken line is shown on one side of the fourteenth floor line. It seems to us that the effect of this is to make it clearer that the room is on the floor below. In the same illustration, showing the main vertical vent with a dotted line where it goes under the fourteenth floor, helps to make things clearer, and putting a little ellipse around the vent at the point A, where it passes through the roof, is a very simple thing but surprisingly helpful.

Referring to Fig. 3, the horizontal run BC will probably seem at first glance to be beneath the fourteenth floor, whereas it is actually under the thirteenth floor. We think that a note such as we have shown, stating where the pipe runs, helps to clear the matter up.

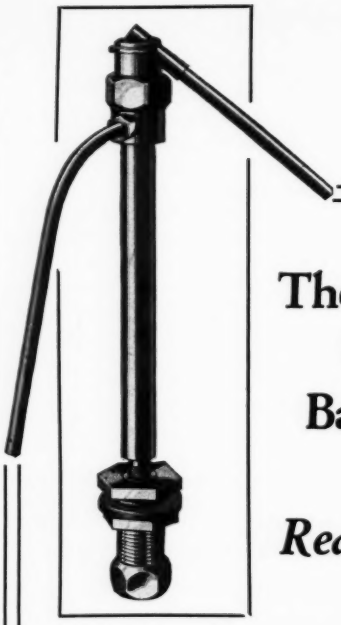
These are just a few of the things that can be done to make the work clearer, but many other things might very likely be done to make the work clearer, and these things are entirely legitimate, for they help the drawing to do the work that it is intended to do.

Before concluding this article, we want to call attention to several things relating to Figs. 7 and 8. In a letter accompanying the original drawing, it is pointed out that the elevation is a good example of plumbing construction as called for under the Florida state plumbing code, which, as we understand it, is largely in line with the Hoover recommendations.

One of the interesting features of this layout is that two 4 by 4 by 4 foot sumps are shown, into which a number of sinks discharge through lines of silica iron pipe. Inasmuch as this pipe is acid resisting, we take it that the fixtures in question are laboratory sinks, and that all chemical wastes are discharged into these sumps and allowed to settle into the ground.

SHADOW ISOMETRIC

THERE has recently been developed by "Domestic Engineering" a plan which looks as if it would be very helpful in connection with isometric and semi-isometric drawing, to which has been given the name of shadow-isometric. Shortly we shall try to describe this new plan, in another article on this same general subject, and illustrate its principles.



The HAAS Silent Ball Cock Is *Really* Silent

Go to your jobber and ask him to demonstrate the HAAS *Silent* Ball Cock to you.

Examine it closely, look carefully into its non-wearing construction. See the glass ball which replaces the usual plunger. Feel the fine quality of drawn brass that goes into it.

Give the HAAS *Silent* Ball Cock a "fine comb" examination, then watch it perform and *listen* to it under high pressure.

You'll find that the HAAS *Silent* Ball Cock is *really* silent and when you ask about the price, you'll be agreeably surprised.

Philip Haas Company
DAYTON, OHIO, U. S. A.

THIS WEEK

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

FORM NEW WHOLESALE COMPANY

Announcement is made of the formation of Bennett & Co., 284 Somerville avenue, Somerville, Mass. This company, which is made up of Daniel C. Bennett and Thomas F. Bennett, was organized to wholesale plumbing and heating goods. Daniel C. Bennett was formerly a salesman with William H. Gallison Co., Boston, and Thomas F. Bennett was formerly a master plumber in Somerville, but has now discontinued his contracting business. Thomas F. Bennett is acting as buyer.

BUILDS NEW ADDITION TO PLANT

The Heller Bros. Co. is building an addition to its plant at Newcomerstown, Ohio, so as to be able to increase production. Mr. Clark, formerly of the Newark, N. J. office of the company, has complete charge of production.

MOVE NEW YORK BRANCH

The headquarters of the New York City branch of the Plomb Tool Co., Los Angeles, Calif., have been moved from 178th street and Arthur avenue, to 12 Lispenard street.

STOCK LISTED ON CHICAGO EXCHANGE

The Modine Mfg. Co., Racine, Wis., recently had 100,000 shares of its no par common stock listed for trading on the Chicago Stock Exchange. According to A. B. Modine, president of the company, it was incorporated in 1916, and the net earnings for the year ending December 31, 1927, were $317,206, after deducting all charges.

CRANE CO. BUYS GEORGE B. BALDWIN CO.

Announcement is made of the purchase by Crane Co. of the George B. Baldwin Co., wholesalers of plumbing and heating supplies at 5753 Ogden avenue, Cicero, Ill. The transaction involves complete transfer of ownership to Crane Co., which will operate the former Baldwin property as a regular company branch. John Rosen, who has been at Crane Co.'s city sales office at 156 North Jefferson street, Chicago, will manage the new branch.

GENERAL CONFERENCE APPROVES COMMERCIAL STANDARDS FOR STEEL AND WROUGHT IRON PIPE NIPPLES

A general conference of manufacturers of pipe and pipe nipples, distributors and users of pipe nipples, held June 29, at the Department of Commerce, Washington, D. C., under the auspices of the Commercial Standards Unit, Bureau of Standards, approved commercial standards for steel and wrought iron pipe nipples.

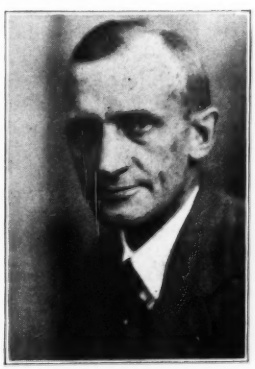
The approved commercial standards specify that pipe nipples shall be made only from tested new full or short lengths and full weight steel pipe, free from buckles, bends, kinks, cracks, laminations, imperfect welds, rust, injurious sand marks or any other defects which might affect its strength or serviceability.

For steel pipe nipples, the pipe shall otherwise conform in all respects with the A. S. T. M. tentative specification for welded and seamless steel pipe, while that for wrought iron pipe nipples shall be in accordance with A. S. T. M. specification for welded wrought iron pipe No. A72-27.

Present Officers of Plumbsteam Club

S. S. Backner, vice president

W. W. Morgan, president



G. H. Derbyshire, secretary

L. V. Agostini, Jr., treasurer

The conference agreed that the effective date for new production and clearance of existing stocks should be January 1, 1929. The commercial standards will be subject to annual review for revision by the standing committees. These committees, appointed by the general conference, are as follows: Standing Committee for Steel Pipe Nipples—Raymond Groff of the Pipe Nipple Standards Corporation, and representatives yet to be appointed by the Crane Co., Walworth Co., Society of American Steel Manufacturers, James A. Messer Co., Central Supply Association, American Society of Heating and Ventilating Engineers, James B. Clow & Sons, National Association of Master Plumbers, and Standard Sanitary Manufacturing Co. Standing Committee for Wrought Iron Pipe—Raymond Groff of the Pipe Nipple Standards Corporation, C. T. Ressler of the Reading Iron Co., James Aston of the A. M. Byers Co., and representatives to be appointed from the James A. Messer Co., Central Supply Association, American Association of Heating and Ventilating Engineers, James B. Clow & Sons, National Association of Master Plumbers and Standard Sanitary Manufacturing Co.

The conference voted unanimously for the adoption of the certification plan of the Bureau of Standards. Under this procedure, the manufacturer of the nipples will, upon request, certify to the purchaser that his commodity is made in conformity with the approved commercial standards.

I. J. Fairchild, head of the Commercial Standards Unit, stated that before printing the standard, signed acceptances must be received from at least 65 per cent of annual production by volume, as well as a majority of distributors and users. The interested elements of the industry will shortly be circularized for this signed acceptance.

When the proper number of acceptances have been received, the commercial standards will be published by the Bureau of Standards, Department of Commerce.

BUREAU IDEAS EXPLAINED TO SAN FRANCISCO SALESMEN

The June 26 get-together of the San Francisco Chapter of Plumbing and Heating Salesmen filled the banquet room of the Clift Hotel to capacity. Emile Heymans of the Eljer-California Co. acted as chairman of the day, introducing J. C. Keene of the Plumbing and Heating Industries' Bureau, as the principal speaker.

"You gentlemen are, I take it, vitally interested in the bureau's program, in view of the financial support given by your organization," began Mr. Keene. Speaking of the move to modernize old homes and the trade possibilities which lie in this dormant market, the speaker indicated the necessity for developing these possibilities. Mr. Keene said the salesman was one of the most potent factors in this development, adding "You are meeting the trade every day. You can aid us materially. We want your services; we need them."

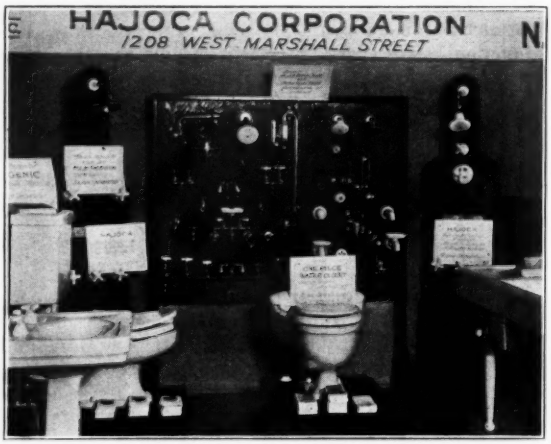
Touching on the bureau slogan "Make a Health Examination of Your Home," Mr. Keene pointed out the necessity of making an impartial examination first; this to be followed by the plumber's recommendations as regards added equipment, alterations and replacements, if any. "Very often," the speaker continued, "these examinations lead to such recommendations as providing for adequate cellar ventilation where damp, dead air has a tendency to rot away beams and timbers; and as he pokes around in remote corners of the house the plumber frequently finds accumulations of rubbish, the removal of which does away with fire hazards. The remedying of such conditions costs little or nothing, but in themselves they tend to raise the home-owner's confidence in the plumber. He will then give a second thought to the plumber's suggestion that a new toilet is needed, or a more modern tub."

As an example of the business-getting possibilities lying in this direction, Mr. Keene cited the case of an Oakland plumber who received three requests to make health examinations. While one netted no immediate return, a second resulted in a repair job, while a third was followed by an order for a complete bathroom outfit.

"Work with the plumber," the speaker counseled. "Tell him of the advantages and facilities the bureau places at his disposal, such as signs and stickers for his show-windows and trucks and his letter-heads and statements, advertising copy, bookkeeping ideas, circular letters for bringing in slow-pay customers, and many other features."

HAJOCA CORP. REPRESENTED AT RICHMOND, VA., EXPOSITION

The accompanying photograph shows the booth maintained by the Hajoca Corp., Philadelphia, Pa., at the Home Comfort Exposition conducted by the Richmond, Va., master plumbers, recently. The exposition was staged



in a prominent building at 23 West Broad street, and was viewed by a large number of people. The Hajoca Corp. maintained a large corps of salesmen at its booth throughout the exposition to explain the products on display.

COMMITTEES OF N. A. P. H. S. APPOINTED BY PRESIDENT WM. F. WEBER

William F. Weber, president of the National Association of Plumbing and Heating Salesmen, has announced his list of committees for the coming year. The committees and their members are as follows:

Membership, William G. Boales, Detroit, chairman; J. M. Buday, New Jersey; Joseph R. Whalen, San Francisco, and L. C. Brockman, Virginia. Employment, Frank R. Nichols, New Jersey, chairman; Walter Blauman, Cleveland, and G. H. Derbyshire, Philadelphia. Better salesmanship, William M. Cooper, New Jersey, chairman; Fred A. Schossow, Detroit; R. Payne Wettstein, Pittsburgh, and Alfred H. Payson, New York. Program, W. M. Morgan, Philadelphia, chairman; A. Sass, Cleveland; Lee R. Bahny, Wilkes Barre. Ritual, E. A. Hepting, Pittsburgh, chairman; Edward M. Robinson, New Jersey, and John B. Caldwell, Detroit. Trade relations, John H. Taylor, New York, chairman; Harry LaCroix, New York; Ralph Smith, New Jersey; Edward J. Bender, New Jersey; Porter West, Detroit; W. Harold Mitchell, Philadelphia; J. C. Mechling, Pittsburgh; T. Robert Perham,

Wilkes-Barre; Frank P. Murphy, Cleveland; G. G. Curry, Virginia, and J. D. Farley, Atlanta, Ga.

The executive committee is made up of Mr. Weber, William M. Cooper, national secretary, and C. W. Cope, Philadelphia, one of the directors. The advisory council includes William E. Kreuger, New Jersey; W. E. Carmichael, New Jersey; Frank L. Boyd, New Jersey; Harry Homer, New Jersey; John H. Taylor, New York; Lewis W. White, New York; Eugene Smith, New York; Ray J. Nentwig, Detroit, and William G. Boales, Detroit.

SALESMEN'S ORGANIZATION APPOINTS EXECUTIVE SECRETARY

William M. Cooper of Springfield, N. J., has been appointed executive secretary of the National Association of Plumbing and Heating Salesmen, it is announced, and has taken over his duties at national headquarters, 103 East 125th street, New York City. Mr. Cooper has been prominently identified with salesmen's activities since before the inception of the national association. He was one of the charter members of New Jersey Chapter No. 1, which is the parent chapter of the body, and served that chapter in various capacities. He is well known to the trade in general in the Eastern section of the country, having been identified with the plumbing and heating fields for approximately 15 years, practically all of this time in a sales capacity. His last position was with the United States Radiator Corp., covering Northern New Jersey territory.

U. S. RADIATOR CORP. TO PAY DIVIDEND

The United States Radiator Corp., Detroit, Mich., has just announced that a quarterly dividend of $1.75 per share on the preferred stock and a dividend of 50 cents per share on the common stock will be paid on July 15 to stockholders of record July 1.

WESTERN NEW YORK GOLFERS PLAY IN CANADA

The second monthly meeting of the Western New York Trade Golf Association was held on Friday, June 22, at the Cherry Hill Country Club, Ridgway, Ontario. The association members were the guests of L. L. Danforth. Dinner was served at the club in the evening with newly elected President William G. Fraser of the Power Efficiency Corp. presiding. William Boyne of Crane Co., handicapper of the association, announced the prize winners and made the presentations.

H. V. Alexander of the Johnson Service Co., with a 70, had low net score in "A" division and won the loving cup. William G. Fraser, president of the association, had low

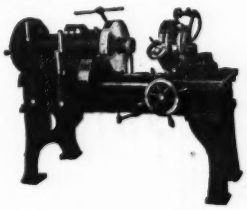
Above: William G. Fraser of Buffalo, president. Below: Group attending the June tournament of the Western New York Trade Golf Association

This Display Carton Sells

DUR-A-BALS

Order Dur-A-Bals in this attractive Display Carton from your jobber. It will increase your profits greatly by helping you sell the new tank ball. The Dur-A-Bal is made of Genuine Pure Gum Rubber, built for longest wear and guaranteed for 3 years.

LAVELLE RUBBER COMPANY
Chicago, Illinois



JARECKI
Pipe Threading Machines

When you find the name "Jarecki" on Pipe Threading Machines, you know that 76 years of manufacturing experience are back of the name.

The "Jarecki" name is an assurance of satisfaction and a guarantee of quality. The buyer who specifies Jarecki products is assured of the best.

From the quarter-inch to twelve-inch pipe threading job—there's a sturdy dependable Jarecki to do the work.

Vises—Pipe Threading Machines—Valves and Fittings

[Established 1852]
Jarecki
Jarecki Manufacturing Company
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QUALITY-FIRST SPECIALTY PRODUCTS
Read our advertisement in this issue. It will be of great interest to you.
PORCELA-RADAX COMPANY
Pittsburgh, Pennsylvania

MIDLAND ALL LEAD ONE PIECE FLASHINGS

Made from virgin pig lead by a patented process that assures you of a pliable lead flashing free of air pockets and cracks and of uniform thickness. Heavy calking ring inside. No joints to come apart. Will fit any pitch roof.
Ask your jobber.
Midland Metal Mfg. Co.
Kansas City, Mo. Newark, N. J.
The Yellow Label is your protection against inferior imitations. Insist upon it!

Genuine Mueller
BRASS PIPE AND FITTINGS
Order from jobber—Get Mueller Genuine Brass Pipe with Mueller Fittings. Send for new Mueller Catalog.
Mueller Brass Co.
PORT HURON • MICHIGAN

SEMLER FITTINGS

We make all the cast iron fittings you need. Steam, Screwed, Flanged; Drainage and Sprinkler Fittings. We furnish them all.
Ask your jobber to supply you
Semler Company
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net score in the "B" division, with a 70, and received a dozen golf balls. Warner Spencer of the American Radiator Co., L. L. Danforth and Carl Parker each received a cigarette lighter. S. G. Houghton also received a cigarette lighter for having the most 7's. Many of the members spent the evening at the club playing bridge.

Other scores of the day follow:

Name	G.	H.	Net	Name	G.	H.	Net
L. N. Castin	114	37	77	E. L. MacWhorter	102	30	72
H. B. Rourke	142	37	105	P. M. McQuade	104	30	74
E. P. Hannig	123	35	88	Wm. Roebuck	116	37	79
C. E. Evans	118	30	88	Wm. Brown	109	37	72
G. R. Corwin	101	20	81	Harold Fenno	120	37	83
S. C. Reich	122	25	97	C. A. Booth	119	27	92
Fred. Vollmer	91	20	71	Tom Novotny	127	40	87
W. Johnson	114	30	84	Ross Farnham	143	40	103
W. C. Winterroth	122	30	92	Morton Wolfe	132	27	105
I. R. Hoffman	122	30	92	A. K. Tinker	117	30	87
H. V. Alexander	95	25	70	Clarence Love	148	40	108
S. G. Houghton	120	25	95	Warner Spencer	114	27	87
D. G. McNeil	115	25	90	Bert Hansen	92	8	84
G. F. Townsend	188	40	148	N. Meyers	117	30	87
W. E. Voisinet	87	7	80	Karr Parker	106	27	79
Wm. Boyne	88	5	83	Wm. Fraser	100	30	70
T. R. Greeves	110	30	80	L. L. Danforth	97	14	83
E. S. Rogers	117	30	87	Lawrence Bly	120	30	90
R. H. Partenfelder	116	25	91				

EMPLOYES OF UNITED PLUMBERS SUPPLY CO. HOLD ANNUAL OUTING

The employes of the United Plumbers Supply Co., Inc., of New York City, White Plains and New Rochelle, N. Y., held their annual outing on Sunday, July 1, on the spacious grounds of Colonial Inn, near City Island. The outstanding features of the outing were a clambake at 1:30 and a baseball game at 3:30 p. m. There were also several events for the ladies. The winners in all events received prizes for their efforts.

THE JUNE TOURNAMENT OF NEW ENGLAND METAL PRODUCTS GOLF ASSOCIATION

The June meet of the New England Metal Products Golf Association was held at the Wannamoisett Country Club, June 28th. It was a beautiful day and everyone had a good time. The next meet will be held at Crow Point on Thursday, July 19th. Thomas W. Rollins has asked the members to his summer homes for luncheon, and dinner will probably be held at Pemberton Inn.

The difficult Wannamoisett course was negotiated by H. D. Nickerson in a 96, during the morning round. Mr. Nickerson's handicap of 24 gave him low net for this round. Robert McKeown captured low gross, an 88. His handicap of 12 gave him second best net, four strokes behind Mr. Nickerson.

W. H. Thayer proved the star of the afternoon, his net 73 nosing out J. S. Nicholl by a single stroke. Mr. Nickerson also had a 73 during the afternoon, but not being eligible for two prizes elected to take the morning gift.

Several guests were present including J. A. Whittemore, Jr., Fred Corcoran, W. H. Nelligan, W. Tufts, and L. R. Fowler.

The following are the afternoon scores:

	G.	H.	N.		G.	H.	N.
J. A. Whittemore (Guest)	No card			P. W. Donoghue	94	9	85
Ray Bloom	107	30	77	W. H. Thayer	85	12	73
Walter Griffith	108	14	94	J. E. Washburn	99	18	81
F. W. Hubbard	124	20	104	W. C. Rice	107	21	86
R. McKeown	95	12	83	W. Tufts (Guest)	98		
Wm. Taylor	97	21	76	L. R. Fowler (Guest)	97		
Fred Corcoran (Guest)	94	..	..	Tillinghast	125	40	85
W. H. Nelligan (Guest)	132			Rollins	No card		
E. O. Chase	104	14	90	A. I. Harvey	103	18	85
W. L. Adams	104	16	88	J. E. Bradshow	105	20	85
				H. D. Nickerson	97	24	73
				J. S. Nicholl	93	19	74

CENTRAL TRADES GOLF ASSOCIATION HOLDS JULY MEET AT THE SHANNOPIN COUNTRY CLUB

The golf committee of the Central Trades Golf Association was very fortunate in its selection of the date for the July meet, as it picked the first sunny day in the month for the July tournament of the Association.

Twenty-four members and guests played the sporty Shannopin Country Club course, which was a big treat for the members.

A cold buffet luncheon was served in the grill room. Due to the absence of Handicapper Dazzy Vance, the secretary made up the foursomes according to handicap and started the players off. In the evening a delightful dinner was served at which time Vice President Ed. Kunde officiated in the absence of the president, Jack Leahy. The prize winners for the day were then announced.

John Kenney won the silver loving cup with a low net of 69.

Robert Ottke won the low gross prize of six golf balls with an 83.

The winners of the foursomes who received six balls were as follows:

Joe Ziegler, with low net of..... 77
Gene Stitt, with low net of..... 82
Harold Downe, with low net of..... 72
Leo Potvin, with low net of.....101
Joe Wills, with low net of..... 83
R. J. Midgley, with low net of..... 77

The Iron Cup was won by Bob Gormley with a gross of 139.

The scores for the rest of the players were as follows:

Name—	Out	In	Gross	H'dicap	Net
Joe Ziegler	52	50	102	25	77
John Kenney	56	48	104	35	69
R. P. Wettstein	55	53	108	30	78
W. Simpson	52	56	108	21	87
C. M. Fenner	61	58	119	30	89
Gene Stitt	61	56	117	35	82
Ed. Kunde	65	60	125	25	100
Jim McKissock	56	54	110	25	85
Harold Downe	45	43	88	16	72
Norman Blackmore	42	46	88	14	74
Mack Snively	48	52	100	18	82
Bob Ottke	40	43	83	6	77
R. C. Gormley	74	65	139	35	104
John B. Jones	71	74	145	35	110
Jack Murray	58	60	118	35	83
Leo Pot in	63	73	136	35	101
J. W. Kinnard	67	62	129	35	94
H. H. Williams	68	62	130	35	95
Joe Wills	57	51	108	25	83
W. H. Howe	59	60	119	35	84
K. Kahley	62	65	127	35	92
E. Mulvaney	90	91	181	35	146
R. J. Midgeley	54	58	112	35	77

NEW JERSEY SALESMEN HOLD JULY MEETING IN NEWARK

National President William F. Weber of New York was the principal speaker at the July meeting of the New Jersey Chapter, National Association of Plumbing and Heating Salesmen, held at Staubwasser's, in Newark, Friday evening, the seventh. Mr. Weber told of activities at the national convention and outlined plans for the national association during the coming year. He pleaded for local enthusiasm and warned the salesmen of the dangers that might face them.

President Edward M. Robinson appointed his committees for the year, the chairmen being: Entertainment, W. Withers Massie; employment, Joseph Buday; grievance, Edward J. Bender; membership, Irving A. E. Wendling, and publicity, W. H. Oleson. It was also voted to have a committee consisting of the president, Harry Homer and Frank L. Boyd wait upon a local hotel to straighten out charges made during the 1927 national convention.

Meet your real competitors on their own ground

*By your real competitors we mean all those retailers who address sales messages to your customers—the retailers who sell radios, automobiles, furniture, and hundreds of other things.

They select the newspapers because they have found that newspaper advertising is effective.

Meet them on their own ground with the message of the products and the service you offer—give the prospect an opportunity to balance the benefits of your service with those others.

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Our Advertising Editorial Service makes advertising easy for you. We send you a cut each week for the illustration—you clip the copy from your issue of DOMESTIC ENGINEERING, and hand it, with the cut, to your newspaper. Easy, isn't it? Send in your order today for three months' service only $4.20.

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Send me the *Retail Advertising Service* for 12 weeks.
Check for $4.20 enclosed.

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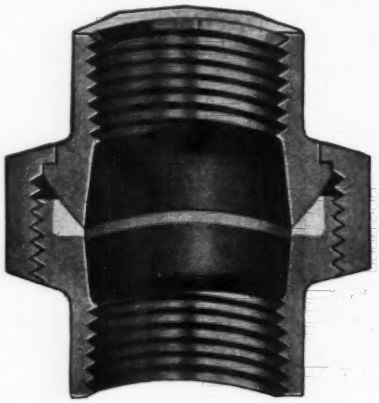


NOTE THE BRASS DISC

Made of Refined Malleable Iron with Brass Seat Inserted in Place by Powerful Pressure So That It Cannot Become Detached.

Approved by Underwriters' Laboratories.

ILLINOIS MALLEABLE IRON CO.
Chicago, Ill.

Manufacturers Full Line Iron Pipe Fittings

250% greater capacity

REFINITE
RIVAL OF THE CLOUDS
TRADE MARK

Mineral lasts almost indefinitely

The type of mineral in the water softener is the all important factor. Your success and your customers' satisfaction depends on the mineral used. Listen to what a dealer in Wisconsin has to say.

The Refinite Co.,
Omaha, Nebr.

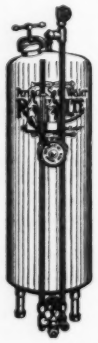
Plymouth Wisconsin,
March 27, 1928.

Gentlemen:

Replying to yours of March 22nd, we have sold Refinite softeners for the past five years. We have also sold a number of other make softeners, but we find that the Refinite softener is standing up and giving 100% service at all times.

We also find by checking up the Refinite softener that it is as full of mineral as the day we installed it, as far back as five years and working as good as in the beginning. In checking up the other make softeners that we have sold and that others have sold, we find that there is a great deal of loss in mineral. Some of these softeners are more than half deteriorated and are giving very poor satisfaction. The writer finds that the synthetic mineral either dissolves and washes away or wears out from the movement of water. This we find is not the case with the Refinite mineral.

Frankly speaking, I can not say too much for the Refinite water softener, and would advise anyone that is in need of a softener to buy nothing but a Refinite regardless of the difference in cost. Any dealer that ties up and handles the Refinite is wise. If he does not believe it, he will when it is too late, and that will be when his competitor has the field that was offered to him.



Yours very truly,
H. F. WOLF COMPANY,

Price $100.00 up. Write for sales information.

THE REFINITE COMPANY
Refinite Building :: **Omaha, Nebraska**

Personal Mention

Vreeland Tompkins, president of the Smooth-On Mfg. Co., Jersey City, N. J., was recently awarded an honorary degree of Master of Science by Rutgers University. The ceremony was a part of the commencement exercises and was in recognition of the distinguished accomplishments of Mr. Tompkins as a chemist and an inventor.

L. L. Wright has been placed in charge of the business of the Sloan Valve Co., Chicago, in the Detroit territory, and will maintain headquarters at 406 Architects' building in that city. He has been associated with the Sloan organization for a number of years. **H. D. Tuck** will continue to be associated with the Detroit office of the company, according to the announcement.

A. K. Tinker has been appointed Western New York sales manager of the Landon Radiator Co., Inc., North Tonawanda, N. Y. Mr. Tinker was formerly with the Hoffman Specialty Co. for two years, previous to which he was with N. O. Nelson Mfg. Co. for about five years. Mr. Tinker entered the field with the American Radiator Co.

A. K. Tinker

C. W. Watson, manager of the Chicago branch, Walworth Co., Boston, Mass., has just returned from a business trip to the Pacific Coast where he visited a number of the company's branches.

A. A. Ahlff, Buffalo manager of Spencer Heater Co., has returned to his office after an extensive business trip to Chicago, Milwaukee, Minneapolis, Detroit and Cleveland.

S. J. Gary has been made manager of sales for the Fiat Metal Mfg. Co., Chicago. Mr. Gary has formerly been connected with the furniture industry, where he has had many years of experience as a salesman and sales executive.

E. A. Krah, Jr., and **C. A. Detweiller** have taken over the active sales management of the Pittsburgh city sales office of the Pittsburg Water Heater Co. at 110 Jenkins Arcade. Both have had a long association with the company in various executive capacities.

DATE ANNOUNCED FOR 1929 CONVENTION OF N. A. P. H. S.

It is announced by the National Association of Plumbing and Heating Salesmen that the 1929 annual convention of that body will be held on May 23, 24 and 25, in Philadelphia. William Morgan, president of the Philadelphia Plumbsteam Club, will also be chairman of the committee in charge.

JOHN A. SHERMAN CALLED BY DEATH

John A. Sherman, president of the Sherman Oil Burner System, Inc., Worcester, Mass., died June 13 at his home in that city. Mr. Sherman was in his 57th year, and was also connected with the envelope manufacturing industry. His inventions did much to further the advancement of the oil burner for domestic use. Early in life Mr. Sherman was connected with the Whitcomb Envelope Company as superintendent, and later founded the Sherman Envelope Company, of which he was president for 20 years.

THIS WAS NEWS 1908 20 YEARS AGO

July 11, 1908

Master plumbers from Boston to the number of fifty were the guests of the master plumbers of Lowell on Monday, June 29. The afternoon was spent at Willowdale, where a program of games was carried out.

—1908—

The National Tube Company of Pittsburgh, Pa., has moved its New York office to the Hudson Terminal building, 30 Church street.

—1908—

Preparations are now being made for the annual picnic of the Pittsburgh Master Plumbers' Association, which will be held again this year at Rock Springs Park. The outing will take place on Saturday, August 8.

—1908—

The Flushovalve Co. of New York City was recently organized, and will conduct business at 45 West Thirty-fourth street in that city.

—1908—

The thirteenth annual meeting of the Massachusetts Plumbing Inspectors' Association was held in the Bay State House, on Friday, June 26. Frank L. Avery of Holyoke was elected president for the coming year.

—1908—

The Tierney-Colgan Co. of 456 Westminster street, Providence, R. I., has been awarded the contract for plumbing the new city hospital, at its bid of $20,198.

New Equipment

A New Type of Electric Radiation

A type of radiation that has a number of new features is now being offered to the heating contractor. The essential features are as follows: The source of heat is electricity; the medium for conveying the heat is a chemical mixture under 20 inches of vacuum; the heating element itself is in the form of what is popularly known as an extended surface radiator—that is to say, it is composed of brass tubes to which thin pieces of metal are attached at right angles; the extended surface radiator is set at approximately 45 degrees in a cabinet.

The cabinet is made of a metal similar to that used in metal furniture and in various radiator covers and shields. The cabinet may be grained or painted to harmonize with the surroundings in the room.

There is a free passage of air at the bottom of the cabinet which extends somewhat above the radiator which it encloses, to give the much-talked-of chimney effect—that is, to induce an upward draft of some velocity. The upward draft forces the heat in a horizontal direction out into the room. These cabinets are of about knee height and may be connected to any light socket.

Although these radiators are at present used mostly for auxiliary heating, it is claimed by the manufacturer that there is no reason why they should not be used for a complete heating installation. He maintains that this device is distinctly in the heating field and that it will be marketed through the heating trade, for he states that even though it may be connected to the light socket, the heating contractor must figure the radiation.

These radiators with cabinet enclosures come in units

FROST
PLUMBER'S QUALITY FM BRASS GOODS
A COMPLETE line. Lavatory and Sink Traps, Connected Waste and Overflows, Supply Pipes, Tank Trimmings, Vent Tees and Crosses, Slip Joint Nuts, Chain Stays, P. O. Plugs, Sink Plugs, Sink and Urinal Funnels, etc., Nickel and Chromium Plate. Packed in the well known orange colored box with a blue band.
THE FROST MANUFACTURING CO.
KENOSHA, WIS.
YOUR JOBBER STOCKS FROST PRODUCTS

Spencer
steam, vapor or hot water
Heater
burns No. 1 Buckwheat coal
"A Size and Type for Every Heating Requirement"
SPENCER HEATER CO., General Offices: Williamsport, Pa.
New York City Boston Philadelphia Baltimore Hartford
Buffalo Rochester Scranton Syracuse Albany

Have you sent for it yet?
The new Trico Franchise Plan

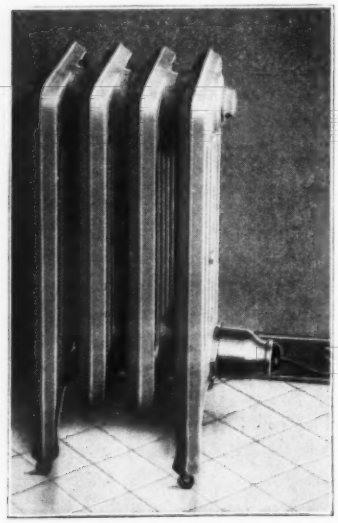
If you want new and extremely profitable radiator furniture business in your locality, it's yours. This Trico Franchise Plan explains how with our organization behind you and absolutely no selling on your part, you will get volume business from this new source immediately. Don't put this off any longer. Write now. It costs nothing. It will pay big. Trico, Inc., Formerly Art Metal Radiator Cover Co., 1784 No. Kolmar Ave., Chicago, Ill. World's Largest Makers of High Grade Radiator Furniture.

FLAGG
FF
Malleable Fittings
Standard and Extra Heavy
Flange Unions
Plugs — Bushings
Standard and Extra Heavy Companion Flanges
STANLEY G. FLAGG & COMPANY, Inc.
1421 Chestnut St., Philadelphia, Pa.

that equal 20 square feet of radiation. They may be connected in series and each may be so controlled by a thermostat, that one or more of the series will be put into operation as the temperature of the room requires. Each unit is also equipped with a control which throws the unit on or off at a certain temperature.

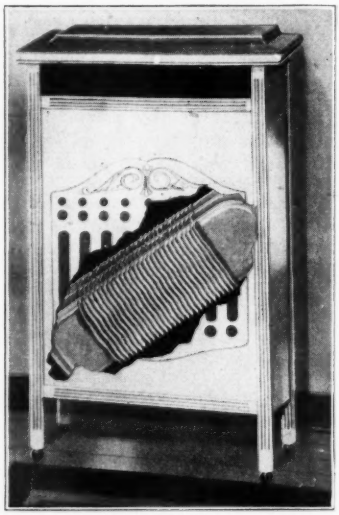
makes it difficult to hold a high vacuum, is overcome in these radiators by impregnating the particles of metal with a nitro-cellulose product in which the radiators are boiled for five days.

The principles of heating by electricity through the medium of a liquid chemical under 20 inches of vacuum are



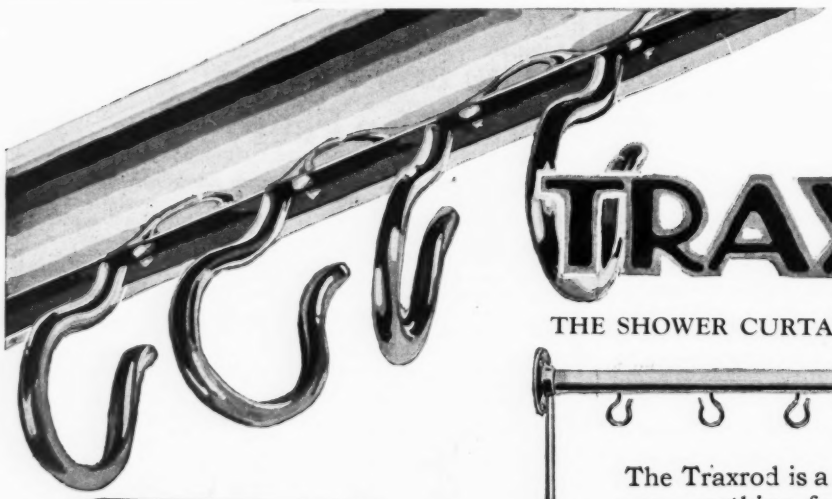
The tubular exposed surface type of electric vacuum radiator

The extended surface cabinet type of electric radiator



The chemical liquid with which the radiators are charged boils naturally at a lower temperature than water, and this, together with a vacuum of 20 inches which is permanently maintained on the radiator, enables each unit to vaporize its contents at low temperature. It is stated by the manufacturer that the porosity of metals which also applied to radiators of the tubular type. Illustrations of both types are shown here.

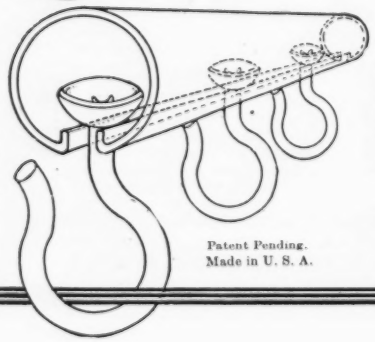
While these units may be called electric vacuum radiators, they involve principles as described above which it is claimed have never before been incorporated in devices for the transmission of heat for human comfort.



TRAXROD

THE SHOWER CURTAIN ROD OF DISTINCTION

The Traxrod is a real sales feature. It is new—nothing for a shower curtain rod has ever been made like it—it adds greatly to the appearance of the bathroom. The concealed hooks eliminate any wear on the outside surface. Curtains are easily taken down or put up.



Patent Pending.
Made in U. S. A.

We have an attractive catalog explaining the Berbecker Traxrod in full. Write us and we will send it to you.

THE BERBECKER & ROWLAND MFG. CO.
WATERVILLE :: CONNECTICUT

New Trade Literature

Blotters of "X" Laboratories

An attractive, three-colored blotter, designed to boost summer business, has been prepared by "X" Laboratories of New York City. These blotters are being distributed to master plumbers and heating contractors, with their names and addresses imprinted. The blotters may be enclosed with bills and statements without extra postage.

"Six Ways to Make the Cellar More Attractive"

The Thatcher Co., of Newark, N. J., has just issued a booklet with the title, "Six Ways to Make the Cellar More Attractive." This booklet consists of twelve pages, six of which are devoted to illustrations in several colors of various ways in which the cellar may be turned into an attractive room. In each of these rooms the company's boiler with scarlet enameled jacket is shown installed. Plan number one is a billiard room, plan number two a play room, number three a gymnasium, number four a work shop, number five a man's "den," number six a dance hall. A radiator, combination range and tubular furnace are also illustrated.

Folder of Abingdon Sanitary Mfg. Co.

Abingdon Sanitary Mfg. Co., of Abingdon, Ill., has issued a folder describing its water closet units. Roughing-in dimensions as well as illustrations are given. Both automatic and manual control units are shown.

Bulletin of Trane Co.

Trane Co., of La Crosse, Wis., is sending out its Bulletin 14-A descriptive of its float drip trap for use on unit heaters, blast heaters, commercial drying equipment, laundry equipment, and similar devices. A cutaway view of the trap is shown.

Circular of Bryan Steam Corp.

Bryan Steam Corp., of Peru, Ind., is distributing a circular giving an illustration of its oil burner, and pointing out various features of this burner. The circular is addressed to prospective dealers in oil burners.

John J. Donovan's Circular

John J. Donovan, of Boston, is distributing a circular describing his floor drain trap. Grease traps, drinking fountain receptors, side stream bubblers, wall water closets., etc., are also listed.

Catalog of Kondu Mfg. Co.

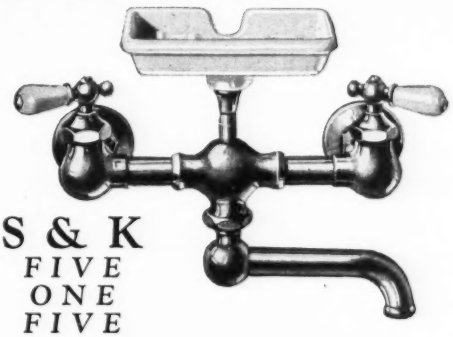
Kondu Mfg. Co., Limited, of Preston, Ont., has just issued its Catalog No. 200. Conduit pipe fittings and cast iron wall brackets are listed and illustrated in this catalog.

Catalog of Excelso Products Corp.

Excelso Products Corp., of Buffalo, N. Y., has just issued a new catalog descriptive of its indirect water heaters. Besides a technical description with cutaway views, illustrations show installations in a home, a hotel, an apartment and a business block. A series of fourteen diagrams shows methods of installation. Information is given on the subject of figuring hot water heating capacities of the company's heaters. A table of hot water fixture capacities is given.

Catalog of Detroit Brass & Malleable Works

Detroit Brass & Malleable Works of Detroit has just issued its catalog "K," consisting of ninety-eight pages, 8½ by 10¾ inches, bound in handsome mottled green, blue and gold imitation leather cover. The catalog lists brass and iron fittings, valves, cocks, gas appliances, traps and specialties for steam, water, oil, gas and air. First come malleable iron fittings such as elbows, ells, tees, crosses, etc. Then come cast iron fittings, nipples, drainage fittings, sink traps, brass valves, such as globe, angle



S & K
FIVE
ONE
FIVE

This new S & K Swing Spout Kitchen Sink Faucet is of distinctive, practical design. The lever handles are in the right position. They do not interfere with the soap dish.

It is exceptionally well made and is priced very low.

You'll want to install the S & K Five One Five just as much as your customers will want to buy it.

Write us for sample and prices.

Street & Kent Mfg. Co. 1954-64 Clybourn Ave. **Chicago**

Moores Will Be Your Customers' Choice

When you show the advantages of Moore hung radiation to your customers, they'll want this unfailing and sanitary method of radiator suspension just as much as you'll want to install them. You save time and money, your customer has new convenience and sanitation. Order them from your jobber.

Carty & Moore Eng. Co.
611 W. Larned St., Detroit, Mich.

Moore
RADIATOR
HANGERS

SIMPLIFIED VAPOR HEAT

AN easy to install system that gives positive control of low pressure vapor, within very close limits.

A post card will bring you Booklet and "The Hutchison Fitter."

Hutchison Regulator Sales Corporation
12 Lispenard Street New York

HUTCHISON SYSTEM

Write for Catalog

Armstrong Bros.
ADJUSTABLE
PIPE DIES and STOCKS
Improved Design—Cut Like Lathe Tools
Dies are Alloy Tool Steel. Chasers are backed off making them easy cutting and long lasting.
ARMSTRONG BROS. TOOL CO.
323 N. FRANCISCO AVE. :: CHICAGO, U. S. A.

TANKS
PRESSURE SPECIAL
BLACK & GALVANIZED
RIVETED & WELDED
PENNA. RANGE BOILER CO.
24th and Washington Ave., PHILADELPHIA

All Burnham Boilers Have Short Tie Bolts

You know what that means in ease of erection. A dollar saved on labor is a dollar of profits to you.

For other Burnham profit features see catalog No. 67.

Representatives in all principal cities o the United States and Canada.

Burnham Boiler Corporation
Irvington, New York.

and check valves, radiator valves and union ells, water gauges, lavatory valves, compression bibs, swinging spout combination sink faucets. Gas fixture fittings are also listed. The catalog is profusely illustrated, and contains a telegraph code and comprehensive index.

Folder on Portable Spraying Unit

The Atomister Corp., Rahway, N. J., has recently issued a new folder, describing the company's pressure spraying machine. The folder illustrates the company's portable spraying unit, and shows in graphic form many of its uses, including that of spraying radiators. The fact that the machine is not a toy, but a practical, dependable spraying machine, is emphasized in the text.

Booklet of Burnham Boiler Corp.

The Burnham Boiler Corp., Irvington, N. Y., has recently issued a 16-page booklet, entitled "Lest you Forget," which gives some excellent pointers on how to burn pea or buckwheat coal. Subheadings include the starting of the fire, banking for the night, what to do in the morning, summer care, and the correct procedure in the fall. Besides being illustrated with attractive cutaway views of Burnham boilers in color, the booklet has many smaller illustrations emphasizing the points brought out in the text. Among the information contained is how drafts switch on and off and how this is performed automatically, advice about having radiation and boiler properly matched, suggestions about pipe covering and air vents, and ways to clean a boiler.

"Saving with Shelving"

"Saving with Shelving" is the title of a pamphlet just issued by The General Fireproofing Company, of Youngstown, Ohio. This booklet gives details as to how the company's steel shelving may be erected in plumbing shops to save space and give more storage capacity, as well as adding to the general appearance of the shop. Various types of shelving with, and without, doors are shown, and there are also numerous illustrations showing installations of shelving in stock rooms, warehouses and offices in both retail and wholesale industries.

Alliance Tank Co.'s Circular

The Alliance Tank Co., of Alliance, Ohio, has issued a circular listing welded tanks for low pressure underground and above ground storage. Another circular describes welded pressure tanks for hydro-pneumatic, hot water, air and general use.

Circular of Fyr-Fyter Co.

Fyr-Fyter Co., of Dayton, Ohio, is distributing a circular describing its fire prevention device. The method of operation is described and a series of illustrations shows the various kinds of buildings, autos, trains, etc., where the device is of use.

The Radio and Ventilation

(Continued from Page 20)

men's toilet rooms, with urinals and water closet stalls as well as adequate sanitary facilities for women. There are similar arrangements on the two upper floors. The plumbing work did not involve any special difficulties, being a plumbing job that any of the better master plumbers could handle easily.

It was interesting to see how O. B. Hanson, the National Broadcasting Co.'s manager of plant operation and engineering, Raymond Hood, and Goldey & Fouilhoux, the architects, Carrier Engineering Corp., manufacturers and contractors, and Jaros & Baum, the consulting engineers, proceeded when they decided to increase the pleasure of radio fans and to decrease the discomfort of radio artists by means of the modern science of ventilation.

Convention Dates

August 21, 22, 23 and 24, 1928.—A. S. S. E.—The twenty-third annual convention of the American Society of Sanitary Engineering, to be held at the Pfister Hotel, Milwaukee, Wis.

August 24 and 25, 1928.—WISCONSIN—The annual convention of the Wisconsin Society of Plumbing Inspectors, to be held in Milwaukee, with headquarters at the Pfister Hotel.

September 17, 18, 19 and 20, 1928.—FUELS MEETING.—The Second National Fuels Meeting, at Cleveland, Ohio, under the auspices of the Cleveland Section of the American Society of Mechanical Engineers.

January 28, 29, 30 and 31, 1929.—A. S. H. V. E.—The annual meeting of the American Society of Heating and Ventilating Engineers, at Chicago, Ill.

COMING TRADE EVENTS

July 17, 1928.—The July meet of the Metropolitan Trade Golf Association, to be held at the Hudson River Country Club, Yonkers, N. Y.

July 18, 1928.—The July meet of the Heating and Ventilating Golf Association of Philadelphia, to be held at the Llanerch Country Club, Llanerch, Pa.

July 18, 19 and 20, 1928.—A short course for master and journeyman plumbers and steamfitters, to be held at A. & M. College of Texas, College Station, Tex.

July 26, 1928.—The annual outing of the Master Plumbers' Association of Washington, D. C., to be held at Chapel Point, Md.

August 1, 1928.—The annual outing of the Fairfield County (Conn.) Master Plumbers' Association, Inc., to be held at Dorlon's Point, South Norwalk, Conn.

August 15, 1928.—The August meet of the Heating and Ventilating Golf Association of Philadelphia, to be held at the Spring Haven Country Club, Wallingford, Pa.

August 16, 1928.—The annual outing and clambake of the Master Plumbers' Association of New Bedford (Mass.) and Vicinity, Inc., to be held at Whitfield's Pavilion, Fort Phoenix, Fairhaven, Mass.

August 16, 1928.—Inter-association golf tournament of the Western Trade Golf Association and the Michigan Trade Golf Association, to be held at Battle Creek Country Club, Battle Creek, Mich.

August 17 and 18, 1928.—The 1928 outing of the Virginia Chapter, Association of Plumbing and Heating Salesmen, to be held at Virginia Beach.

August 18, 1928.—The outing of the Brooklyn Plumbing Supply Credit Association, to be held at Karatsonyi's Hotel, Glenwood Landing, with automobiles leaving Trommer's Restaurant, Brooklyn, at 9 a. m.

August 23, 1928.—The annual outing of the Master Plumbers Association of the City of Trenton, N. J., to be held at the Fair Grounds in that city.

August 23, 1928.—The August meet of the Metropolitan Trade Golf Association, to be held at the Braidburn Country Club, Madison, N. J.

September 15, 1928.—The annual outing of the Nassau County South Shore Association, to be held at Narragansett Inn, Lindenhurst, L. I., N. Y.

September 19, 1928.—The September meet of the Heating and Ventilating Golf Association of Philadelphia, to be held at the Green Valley Country Club in that city.

September 21, 1928.—Golf tournament of the Western Trade Golf Association, to be held at Glen Oak Country Club, Glen Ellyn, Ill.

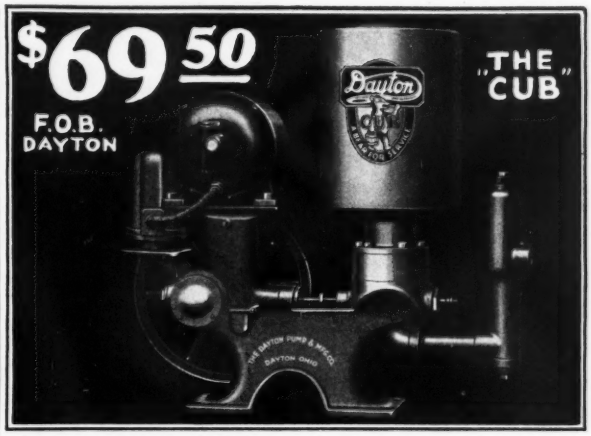
September 29, 1928.—The annual outing of the Queensboro branch, Association of Master Plumbers of the City of New York, to be held at Narragansett Inn, L. I.

October 15, 1928.—October meet of the Delaware Valley Trade Golf Association, at the Columbia Country Club, Washington, D. C.

October 17, 1928.—The October meet of the Heating and Ventilating Golf Association of Philadelphia, to be held at St. David's Country Club, Wayne, Pa.

October 23, 1928.—The October meet of the Metropolitan Trade Golf Association, to be held at the Wykagyl Country Club, New Rochelle, N. Y.

November 7, 1928.—The November meet of the Heating and Ventilating Golf Association of Philadelphia, to be held at the Pine Valley Country Club, Clementon, N. J.



Good Pumps for Good Profits

DAYTON Water Systems have a reputation for "making the water do the running" year after year without breakdown, wear-out or servicing.

The Dayton agency has been the means by which thousands of progressive plumbers have extended their markets into profitable suburban and rural territory.

Generally higher standards of living and the rapid extension of electric power lines have increased the profit possibilities of the automatic water system immensely. The Dayton dealership is particularly desirable. DAYTON systems, though of known high quality, are no higher in price. Moreover, the DAYTON line is complete—there is a DAYTON system for any requirement, for shallow or deep wells.

Write for the new DAYTON catalog, price list and schedule of dealer discounts.

DAYTON JR. Deep Well Pump Simple, quiet, rugge

THE DAYTON PUMP & MFG. CO.
Dayton, Ohio, U. S. A.

Pioneer Mfrs. of Private Water Systems

Dayton WATER Systems

Make the Water do the Running

CO. 1928—T. D. P. & M. CO.

IN YONKERS

Forty-five minutes from Broadway is this palatial home for apartment-dwellers, "Springside." Twelve T/N One-piece Closets are installed in this charming apartment dwelling. (Mrs Florence E. Eblin is the owner; Frank A. Carr, architect and builder and John A. Shesler, plumber.) Are you getting more business, more profits, with T/N unit fixtures?

W. A. CASE & SON MFG. CO.
220 Delaware Avenue, Buffalo, New York
Potteries: **ROBINSON, ILLINOIS**

T/N ONE-PIECE CLOSETS

THE TRADE

NEWS FOR PLUMBING AND HEATING CONTRACTORS

WESTFIELD, N. J., MASTER PLUMBERS ORGANIZE

A new master plumbers' association has been formed in Westfield, N. J., it is announced. W. P. Stuernagel is president of the new organization and F. O. Young is secretary. Eighteen of the nineteen masters in the city are represented.

SAN FRANCISCO BUREAU OFFICE IN NEW LOCATION

The San Francisco office of the Western Branch of the Plumbing and Heating Industries' Bureau has been moved from the Sharon building on New Montgomery street, to Room 230 of the Chronicle building, Fifth and Mission streets.

CHICAGO MASTERS TO HOLD JULY GOLF MEET

The July golf meet of the Plumbing Contractors Association of Chicago is to be held at Tam O'Shanter Golf Club. The meet will be held Thursday, July 19, according to John MacKenzie, chairman of the golf committee of the association.

BUFFALO TRADE HOLDS ANNUAL OUTING

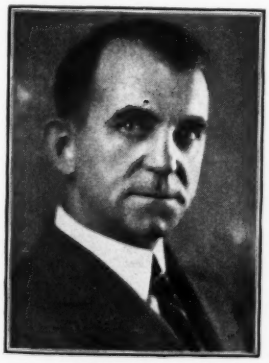
The annual river party of the Plumbing and Heating Supply Trades of Buffalo, N. Y., was held on Tuesday, June 26, under the auspices of the Master Plumbers' Association of Buffalo. Some 150 contractors, salesmen, jobbers and manufacturers boarded the boat at the foot of Amherst street at nine-thirty in the morning to start on the journey down the Niagara River. Three meals were served on the boat, buffet breakfast, dinner and supper. Cards, music and other entertaining features were enjoyed during the ride.

Arriving at Edgewater on Grand Island, after a beautiful three-hour ride, a baseball game was started between the East Siders, headed by George Salzman of the Salzman Sanitary Supply Co., Inc., and William McGamwell, who headed the West Siders. The latter won out after a hard fight by a 7 to 4 score. Each member of the winning team received a small pocket knife. Carl Johndahl and George Frank, president of the New York State Associa-

President Sheehan Opens National Office

TO MEMBERS OF THE NATIONAL ASSOCIATION OF MASTER PLUMBERS

WE ARE proud to report that the office of the National Association of Master Plumbers was opened July 2, Suite 504-5-6 Louderman Building, 317 North Eleventh street, St. Louis, Mo. Our location is in the business center of the city, very close to the hotels, and convenient to the railroads.



Jere Sheehan Jr.

The rapidity with which the office was opened was greatly due to the able assistance of National Secretary Ed. L. Penfrase. We have in charge John F. Donovan, executive clerk, who was formerly with past President Thos. F. Nolan.

We will be glad to be honored with a visit to our office, and extend a hearty welcome to members when in our vicinity. We have been entrusted with the guidance of the affairs of our association, and are ever ready to extend our assistance to those that will call for our service.

We solicit the co-operation of the members of our association to a successful culmination of our administration.

Deeply appreciative of the honors and responsibilities conferred upon me, I am,

Sincerely yours,
Jere Sheehan, Jr., President.

A MESSAGE TO THE STATE ASSOCIATION SECRETARIES

WE HAVE a great privilege and opportunity before us to serve a definite and useful purpose for the benefit of our organization.

Great things are accomplished by men who specialize and concentrate on the duties of the office to which they are elected or appointed.

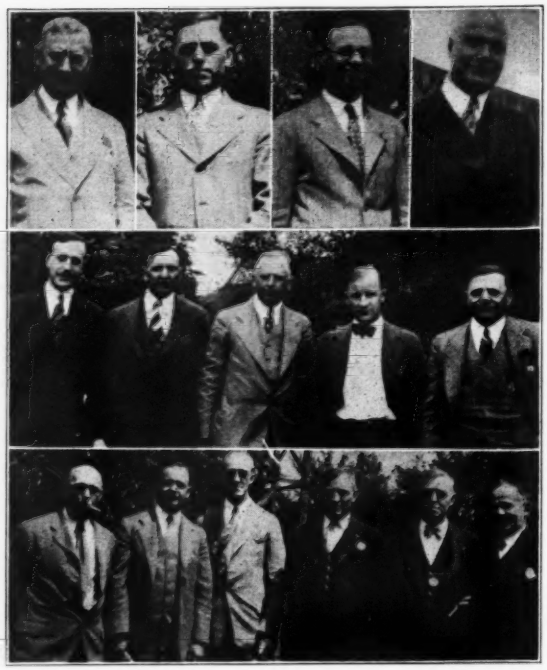
I believe if the state secretaries develop the thought that the success of this administration depends largely on the determination of those who serve each state president, to make the sacrifice I expect to make in serving our national president, it will culminate in a one hundred per cent success.

Ed. L. Penfrase

If those who have constructive ideas will submit them to the general office, thus showing their interest in the work we are undertaking, it will enable us to serve the best interest of each state and encourage us to "carry on" in a co-operative way.

If we make a vigorous beginning now and put forth our most earnest effort, good results will surely follow and when we meet in convention at Buffalo next year our report should represent the constructive progress that is the aim of our present administration.

Ed. L. Penfrase,
National Secretary.



Top row: George Frank, president of New York State Association of Master Plumbers; Fred Fleishauer, manager of the Buffalo association; Henry J. Ritter, president of the Buffalo association; Archer A. Landon, president of Landon Radiator Co., Inc. Middle row: George Kleine, Richardson & Boynton Co.; E. W. Stultz, EverHot Heater Co.; Jerry Freiberg, Crane Co.; F. I. Peterson, Sloan Valve Co.; E. P. Hannig, Reading Iron Co. Bottom row: Outing committee, A. G. Kranichfeld, Frank W. Stimson, chairman; Fred N. Jones, Michael A. Zak, Fred M. Lochnicht, Edward S. Franke

tion of Master Plumbers, umpired the game in noble fashion.

D. Patton proved to be the fastest master plumber on the grounds in winning the 100-yard dash for master plumbers, and received a flush valve as his prize. George Hutchings received a pair of basin cocks for being second, while third prize, a bench vise, went to Anthony LaDuca. Mr. LaDuca also showed speed in the shoe race and won first prize, a white closet seat. Leo Smith was second in this event and received a china combination holder. A set of auto wrenches went to George Hutchings for coming in third. First place in the balloon race went to Conrad Stengel, who received a set of bath room trimmings. August Denler received a wrench for coming in second. In the shot-put Fred Kranichfeld proved to be the strong man by winning first prize, a combination sink faucet. H. R. Cross of American Radiator Co., was second and was given a china shaving set combination. Al Kranichfeld and George Hutchings were tied for third in this event. Each received a pipe cutter.

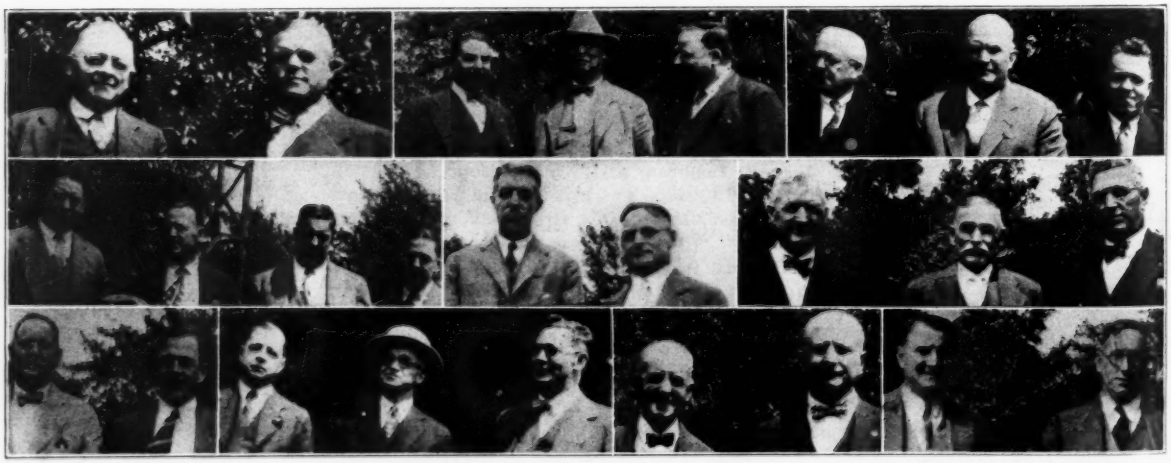
First prize for hitting the bull's eye went to L. N. Castir, who received a plumber's furnace. Robert Elsaesser, of the Salzman Sanitary Supply Company, Inc., won second prize, which was a set of stocks and dies. William Buckley received a bench vise for being third in this event.

William McGamwell won first prize in the ball-rolling contest and received a 100-foot garden hose. S. Van Dick was second and was given two nickel plated bibbs. Third prize went to J. N. Nathan of American Radiator Co., who was rewarded with a sea-green pearl seat complete with stand.

Leo A. Smith won first prize in the crest special race. He was given a set of hack-saw and blades. George H. Drescher was second and carried away two-dozen tank balls as his prize. David Patton received a case of pipe-joint cement as third prize.

After an enjoyable afternoon on the island, the crowd boarded the boat and started homeward bound. The outing committee, composed of Frank W. Stimson, chairman, Fred H. Jones, A. G. Kranichfeld, Michael A. Zak, Fred M. Lochnicht, and Edward S. Franke are to be given a great deal of credit for their untiring efforts in making the outing a huge success.

Fred Fleishauer, manager of the association, is also to be commended for his work in assisting the committee with the arrangements.



Top row: F. M. Dellwardt, of F. M. Dellwardt & Son Co., Inc.; R. P. Wilson of Jas. L. Wilson & Sons, Inc.; John Cracknell of Toronto, Ontario; B. Joseph O'Donnell of Plumbing and Heating Industries' Bureau; Garrett Frankland of Toronto; L. H. Ballou, of Dixon & Ballou, Inc.; W. A. Wilson, A. Naumann of Bison Builders Supply Co. Middle row: W. J. Hilborn of Salzman Sanitary Supply Co., Inc.; H. A. Warren of Warren Specialty Co.; A. D. Swink of Detroit Brass & Malleable Works; D. F. Burdick of Standard Sanitary Mfg. Co.; William McGamwell, George Salzman of Salzman Sanitary Supply Co., Inc., captain of the baseball team; George D. Clucas, William H. White, chief plumbing inspector of Buffalo; George W. Crane of Penn Yo Plumbing Supply Co. Bottom row: William Ludlow, D. R. Ewing of Ruud Mfg. Co.; C. A. Peck of J. L. Mott Co.; Fred Zander, Buffalo manager of Crane Co.; P. S. Hedley of Berbecker-Rowland Mfg. Co.; W. J. Griffin, Arthur C. Huck, J. G. Heber of Schaefer Plumbing Supply Co.; Joe Carberry of Buffalo Plumbing Supply Co.

CALIFORNIA MASTERS SHOW INTEREST IN BUREAU WORK

Since the Plumbing and Heating Industries' Bureau established a Southern California office at Los Angeles under the direction of John R. Denning a little more than six weeks ago, there has been a real manifestation of interest in the work of the bureau upon the part of the master plumbers in that section of the country.

According to Mr. Denning more than 240 requests for information and assistance have been received by his office and have been responded to. Furthermore, the predominant nature of these requests pointedly indicates the direction in which the minds of the masters are tending. Four important and fundamental ideas seem to be the predominant characteristics of this tendency. These are, in the order of their importance as indicated by the number of inquiries received, as follows: Window displays and floor plans; cost accounting and bookkeeping; merchandising helps; individual advertising.

Up until the present Mr. Denning has spent his time very largely addressing groups of master plumbers wherever they may have been gathered together within his territory, leaving the attention to individual requests for assistance to the ministrations of his office.

One of the important group meetings was called to meet at San Diego on the evening of July 9, at which time it was hoped that most of the master plumbers in the whole of the extreme southern portion of this territory would be present. The meeting was to be held in the Master Plumbers' Hall in San Diego and was under the auspices of the San Diego Merchant Plumbers Association. In addition to Mr. Denning, representing the bureau, it was expected that many of the present and past state officials would be present.

Mr. Denning is advocating group advertising for master plumbers. In his opinion such group advertising is the best way to acquaint the residents of any community with the highest ideals of sanitary plumbing and to tie up the individual plumber with the idea that what he has to sell and what service he may give is the best that it is possible to get in that community. In other words, this would tend to establish the idea of certified or guaranteed plumbing in every community. Thus by hooking up the group advertising and the individual advertising of the merchant plumber with the national advertising plan of the bureau, the public can be educated to an appreciation of what constitutes effective and sanitary plumbing and also it can be educated to the point where it will be willing to pay what such plumbing is worth.

CREDIT ASSOCIATION HOLDS FIRST BANQUET

The Plumbing & Heating Contractors' Credit Association of Newark, N. J., held its first annual banquet on June 25 at the Elks Club, that city. The organization, which was incepted for the purpose of bettering credit conditions, has as its president George Snyder, Newark master plumber. He introduced Edward R. McGlynn, who acted as toastmaster during the discussions that followed the dinner.

Edwin F. Schofield of the American branch of the Fidelity Union Trust Co. spoke on the advantages of credit and of the ways it is abused by those who are always trying to take advantage of the bank or banker. He told of the processes by which a banker judged credits, etc., and urged the plumbing and heating contractor to avail himself of the facilities of his bank before he signed any contract to do any large amount of work for a general contractor whose credit status was unknown or in doubt.

Curtis R. Burnett, past president of the National Association of Credit Men and connected with the National

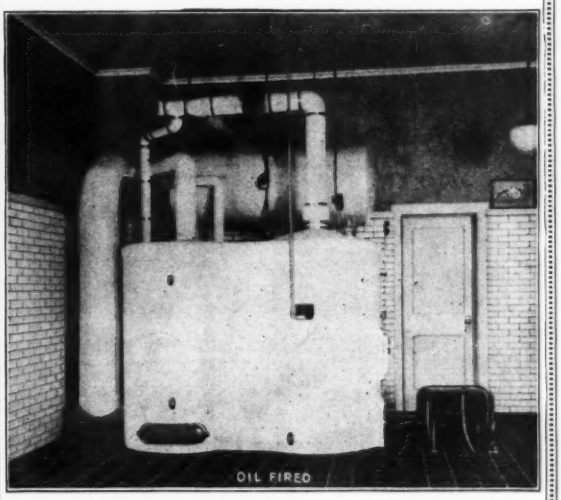


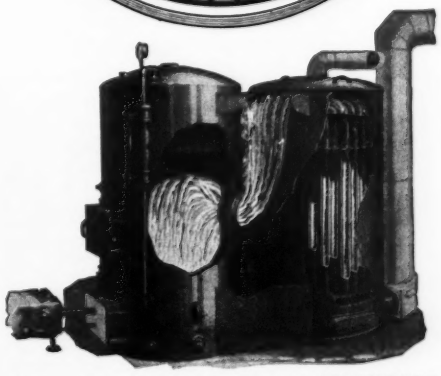
Photo of a Typical KOOLSTACK Installation—Oil Fired

FOR ECONOMY in Fuel Consumption, use a KOOLSTACK Boiler with an efficient Oil Burner. Don't handicap a good burner with a poor boiler—put that burner in a Koolstack boiler.

Why Burn 35% to 50% More Fuel?

WRITE TODAY FOR BULLETIN GIVING FULL DETAILS

Leader KOOLSTACK BOILERS



Cut-away View Showing Operation of a KOOLSTACK

LEADER IRON WORKS

2152 N. JASPER ST. :: DECATUR, ILLINOIS

21 East 40th St., New York, N. Y.

The first annual banquet of the Plumbing and Heating Contractors Credit Association, Newark, N. J.

Oil & Supply Co. of Newark, spoke of the proceedings of the annual convention of the National Association of Credit Men which had been held at Seattle, Wash., the week preceding the dinner. He also outlined the phases of activities of the National Association of Credit Men and made a plea for more thorough credit investigation on the part of the plumbing and heating contractor on all work on which he bids.

Sidney Hollander of the New Jersey Building Trades Bureau spoke at some length about the ways and means of the speculative building contractor and gave some pertinent suggestions as to how the plumbing and heating contractor could protect his business by the judicious use of established credit agencies.

Joseph Freiss, credit manager of the Thatcher Co., spoke along the same lines.

President George Snyder outlined their aims and told of the progress that had been made in the six or seven months since the association was organized. He asked for all contractors in the banquet hall, who had not as yet been acquainted with the workings of the association, to seek such information from him or any other member.

The dinner was all that could be desired and much credit should be extended to the committee responsible for it. The members of the committee were Al. Hoffmann, Benjamin Sternrich, Max Cohen, and Al. Fechtner.

TRENTON MASTER PLUMBERS CHANGE DATE OF OUTING

At the last meeting of the Master Plumbers Association of the City of Trenton, N. J., it was announced by the entertainment committee that the date for the annual outing had been changed from August 16 to August 23. The event will be held at the Fair Grounds.

1897 DEHNSANIGARD THE QUALITY GOODS 1928

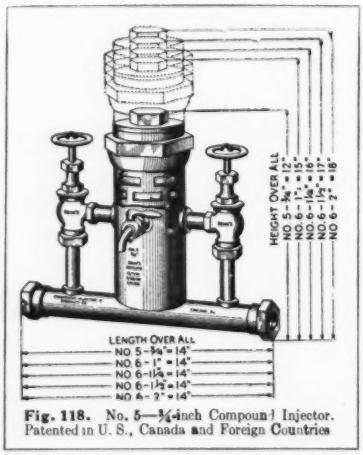


Fig. 118. No. 5—¾-inch Compound Injector. Patented in U. S., Canada and Foreign Countries

There's more than twenty-five years of successful manufacturing and operating experience back of the Dehn Automatic Water Softener. Ask us or your jobber for full details of the Dehn.

COMPOUND INJECTOR & SPECIALTY COMPANY
419-421 D. No. Laramie Ave., Chicago, Ill., U. S. A.

Originators, designers and sole manufacturers of

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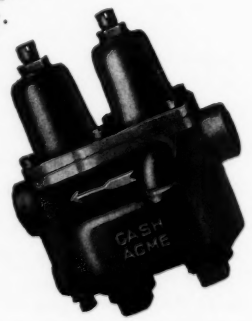
ACME IT'S AUTOMATIC

POSITIVE PRESSURE CONTROL

Built entirely of bronze, the Type AG Cash Acme Automatic Pressure Control has a large, easily cleaned strainer ahead of the working parts for their protection; a wide opening regulator to supply the water; a by-pass valve that is used to fill the system quickly and cleanly.



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Decatur, Ill., Mfrs.
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431 So. Dearborn St.
Chicago, Ill.
Tel. Harrison 4968
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New York City, N. Y.
Tel. Cortlandt 1553

Markets

(Continued from Page 62)

Several makers announced a 12½ per cent reduction in range boiler quotations to jobbers over the last published sheets. Deliveries of most all materials from sources are being quickly effected.

Soil Pipe

Roughing-in work from all reports continues to show betterment, accounting for good distribution from local jobbing points. Makers' deliveries are not delayed. Some discrepancies in makers' quotations prevail, the advance of 2½ points to jobbers made by one foundry last week still leaving a spread of 2½ points between its new sheet and the sheets of several others.

Pipe—Brass-Steel-Wrought Iron

Steel pipe seems to hold distributors' interests well. Makers of wrought iron pipe report good shipments for the month of June and good output for industrial work. The increase of contractors' roughing-in requirements is reflected in makers' and wholesalers' reports of better movements of steel and brass pipe. Prompt deliveries from sources are usually obtainable. Makers' prices were unchanged during the week.

Fittings

The average maker has at present a substantial volume of unfilled business on his books. Wholesalers are cognizant of increasing demands from their customers as new projects are reaching the stage where installations of these commodities are necessary. Stocks at factories and in jobbers' warehouses are of ample proportions. Makers' prices have not been changed.

Enameled Ware

Wholesalers are buying in fairly good sized quantities and their orders are being repeated more frequently than was the case several months ago. Shipments to jobbers' stocks are being augmented by direct-to-job placements. Producers are able to make shipments as requested. No price changes were announced by makers during the week.

Pottery

Staple ware is moving into consumption at a pace generally accepted as satisfactory for this time of the year. Releases of special pieces were also reported as of good volume during the week. Jobbers' stocks are ample for the present requirements of their trade and whenever replacements become necessary potteries show ability to make early forwardings. Makers' prices were not changed during the past seven days.

Plumbers' Brass Goods

Manufacturers continue to produce at a steady rate and are making quite satisfactory shipments. Plumbing contractors are calling for larger quantities of both cast and tubular products and wholesalers must consequently maintain well assorted stocks. Quick shipments from factories are the general rule. The price situation from both makers' and wholesalers' standpoint remains unchanged.

Range Boilers

Extensive activities reported by makers during May and June continue to prevail. Master plumbers' demands of this commodity are showing signs of improvement with each succeeding week. Stocks in all cases are ample and deliveries are consequently unextended. Some makers' prices to jobbers were reduced 12½ per cent over the last sheets.

Boilers and Radiators

Boiler and radiator shipments were improved during the past fortnight following numerous placements by contractors and distributors at the time of recent price advances. Ample supplies at sources and their local ware-

"Built with a click"

A Real Relief Valve

The external spiral spring on the Nelson Relief Valve does not come in contact with the water.

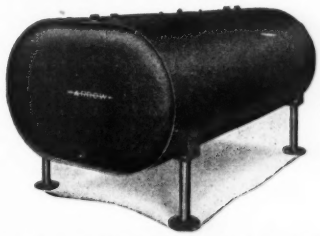
Made of phosphor bronze, this spring can never be affected by climatic or atmospheric conditions. Thus it always retains its tension and assures perfect functioning.

The Nelson may be adjusted by any mechanic within ten seconds to operate at any required pressure from 1# up to 175# The click which will be heard at the moment when the maximum pressure adjustment is reached, is an exclusive feature with the Nelson.

THE STACK HEATER CO.
250 Stuart Street Boston, Massachusetts

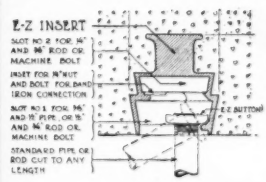
ARROW Underwriters' Labeled
UNCONDITIONALLY GUARANTEED
Fuel Oil Storage Tanks

Write for Prices



Ask For Bulletins B-208 and F-308

THE NOVELTY STEAM BOILER WORKS CO.
Clare and Kloman Streets Baltimore, Maryland


E-Z INSERT
SLOT NO. 2 FOR ¾" AND 1" ROD OR MACHINE BOLT
INSET FOR ¾" NUT AND BOLT FOR BAND IRON CONNECTION
SLOT NO. 1 FOR ½" AND ¾" PIPE OR ¾" AND ¼" ROD OR MACHINE BOLT
STANDARD PIPE OR ROD CUT TO ANY LENGTH
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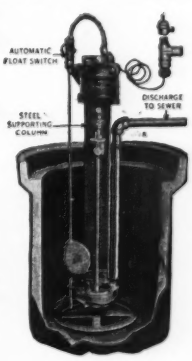
E SIX IN ONE Z
CONCRETE INSERTS
A New Convenience!

ONLY one size needed for all pipe hangers. Ball and socket connection between insert and hanger. Fully adjustable—allows play to overcome expansion and inaccurate alignment of inserts. *E-Z Button turns in the insert—no couplings or turn-buckles needed.*

WRITE FOR DETAILS AND PRICES

Healy-Ruff Co., 770 Hampden Ave., St. Paul, Minn.
Manufacturers of E-Z Radiator Hangers.

PRICE & Quality
Taber
Midget
SUMP PUMPS
◂No. 1 . . No. 2▸
Write for Bulletin MU528



TABER PUMP CO., 290 Elm St., Buffalo, N. Y.

houses insure prompt delivery service. Makers' prices have not been changed.

PACIFIC COAST

Business Maintains Its Level—

In Pacific Coast jobbing centers business continues to keep at practically the same level from week to week and as a whole is of fairly satisfactory volume although less than it has been during a similar period of former years. While quotations vary somewhat in the jobbing centers, market prices as a whole are being fairly well maintained.

Soil Pipe

A moderate volume of this commodity continues to move although most of the business is in small lots for immediate delivery and there are very few if any inquiries out for future requirements. Distributors' stocks are as a rule well assorted and of sufficient tonnage to take care of all of the trade requirements without delay. Jobbers' prices to the trade remain unchanged.

Pipe—Steel and Wrought Iron

Distributors of this commodity as a rule are continuing to do a moderate volume of business. Consumption on the Coast at present is very close to that of previous years. Most distributors' stocks of steel and wrought iron pipe are in excellent shape with the result that the trade can secure prompt delivery on practically all inquiries. Wholesalers' prices to the trade remain unchanged.

Fittings

Little change was noted during the past week in the demand for this commodity which continues to be in moderate volume. Wholesale houses can ship from stocks on hand without delay. Distributors' prices to the trade remain unchanged.

Enameled Ware

The past week brought forth no change in the demand for enameled ware which continues to be of moderate volume. Most distributors can deliver from their stocks on hand without delay. Coast factories and also manufacturers' warehouses on the coast are in position to make prompt delivery. Distributors' prices to the trade remain unchanged.

Pottery

Purchasing of this commodity continues to be mostly in small lots for immediate consumption and while the total number of pieces being used on the coast at present are of fairly satisfactory volume still the demand is not as heavy as it has been in former years. Most distributors have good stocks and nearby coast potteries are in a position to make early delivery on ware. Jobbers' prices to the trade remain unchanged.

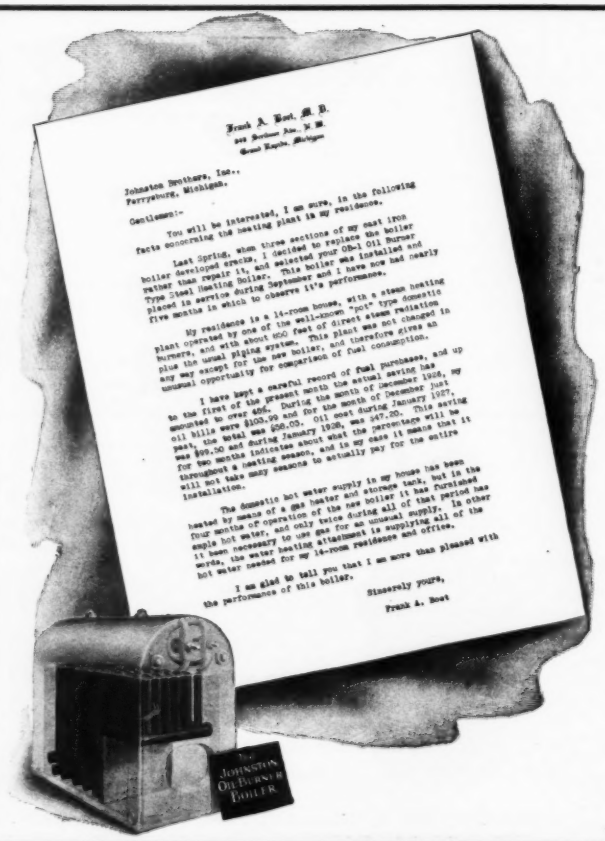
Plumbers' Brass Goods

The demand for plumbers' brass, especially cast, continues to be of good volume, showing very little variance from week to week, except if anything, slight increases. Practically all distributors are in a position to make prompt delivery.

Distributors' prices to the trade, while varying somewhat in the different jobbing centers, remain unchanged.

Range Boilers

Distributors of range boilers as a rule have well assorted stocks at present and all of the trade's requirements can be properly delivered. Demand shows no betterment over the lightness previously reported. Wholesalers' prices to the trade remain unchanged.


Frank A. Root, M. D.
Johnston Brothers, Inc.,
Ferrysburg, Michigan.
Gentlemen:-
You will be interested, I am sure, in the following facts concerning the heating plant in my residence.
Last Spring, when three sections of my cast iron boiler developed cracks, I decided to replace the boiler rather than repair it, and selected your Obl Oil Burner Type Steel Heating Boiler. This boiler was installed and placed in service during September and I have now had nearly five months in which to observe it's performance.
My residence is a 14-room house, with a steam heating plant operated by one of the well-known "pot" type domestic burners, and with about 600 feet of direct steam radiation plus the usual piping system. This plant was not changed in any way except for the new boiler, and therefore gives an unusual opportunity for comparison of fuel consumption.
I have kept a careful record of fuel purchases, and up to the first of the present month the actual saving has amounted to over $60. During the month of December 1927, oil bills were $108.90 and for the month of December 1928, the past, the total was $68.00. Oil cost during this saving was $40.90 and during January 1928, the percentage will be for two months indicates about what the year's saving will be throughout a heating season, and is my case it means that it will not take many seasons to actually pay for the entire installation.
The domestic hot water supply in my house has been heated by means of a gas heater and storage tank, but in the four months of operation of the new boiler it has furnished ample hot water, and only twice during all of that period has it been necessary to use gas for an unusual supply. In other words, the water heating attachment is supplying all of the hot water needed for my 14-room residence and office.
I am glad to tell you that I am more than pleased with the performance of this boiler.
Sincerely yours,
Frank A. Root
The Johnston Oil Burner Boiler

A Boiler That Sells Because It Saves

Every Johnston - Oil - Burner Boiler installation — because it cuts fuel costs from 25% to 50% — leads to other prospects. Records of performance, and the Johnston Boiler has established some remarkable ones, open the way to greater sales volume.

If you sell oil burners you should also sell Johnston Boilers, because if you sell Johnston Boilers you will sell *more oil burners.*

Write for Catalog and Complete Dealer Proposition

JOHNSTON BROTHERS, Inc.
Ferrysburg, Michigan

Apprenticeship Work Shows Progress

Report of N. A. M. P. Committee Indicates Growth of Interest; Chairman Quinn Tells Convention of Activities

THE Apprenticeship Committee's Report gave a detailed account of apprenticeship activities in office and field, and it emphasized the great progress made during the year, from June 1, 1927 to May 31, 1928. Excerpts from this report follow:

A total of 135 days was spent in the field by the Director of the Apprenticeship Service Department. During this time a total of 115 addresses were made with an average attendance of 55 and a total attendance of 6,346. One regional conference on apprenticeship and apprentice training, journeyman training and foreman training for our industries covering eleven states; four state-wide conferences; 32 joint apprenticeship conferences, attended by all interests, employers, journeymen and school people; and 32 conferences with local master plumbers' associations were conducted. Addresses were made at three state conventions and 14 states of the western region were fairly adequately covered. Contacts were made with 20 state departments of vocational education with reference to programs of apprentice training, journeyman training, foreman training and instructor training and with 16 state universities and other state educational institutions regarding programs of foreman training, instructor training, research and engineering education in the plumbing and heating industries.

John A. Quinn

Chairman of the apprenticeship committee, and elected vice president at the recent Memphis convention

The result of this effort in the field was a definite region-wide program of apprenticeship and apprentice training for the eleven states of the western region through a regional conference on apprenticeship and apprentice training conducted under the joint auspices of the Federal Board for Vocational Education, the Western Industrial Education Association, the National Association of Master Plumbers, the United Association of Journeymen Plumbers and Steamfitters and the Plumbing and Heating Industries Bureau; specific and definite development of all-round state-wide programs in the states of Oklahoma, Texas, Oregon and Minnesota; the inauguration of 17 training programs for apprentices and journeymen, some of which have already been established and others to be established for the first time with the opening of schools in September; 2 three or four-day short courses for the states of Kansas and Minnesota, to be conducted under the auspices, respectively, of the University of Kansas and Dunwoody Industrial Institute; an annual two-weeks intensive short course for plumbing and heating instructors, to be conducted under the joint auspices of the Texas State Department of Vocational Education, the University of Texas and the Texas Agricultural and Mechanical College for the state of Texas and surrounding states; definite and specific assistance to state departments of vocational education and state educational institutions in their programs of foreman training and instructor training; and increased interest and effectiveness on the part of state and local trade and educational groups in providing and maintaining definite programs of apprenticeship and apprentice training in our industries.

During the year, 5,863 individual dictated letters, 2,380 automatic letters and 2,049 circular letters, a total of 10,292 letters, were sent out. This is an increase of 44.2 per cent over the number of circular letters sent out the same period last year, but a slight decrease in the number of individual dictated and automatic letters, due to the fact that approximately one-third of the time of the director was spent in the field.

Pamphlets, folders and printed sheets giving information concerning various phases of apprenticeship and the Bureau's program of training have been prepared from time to time during the year and mailed to the various branches of the industries. A total of 46,515 pieces of printed literature have been distributed. This is an increase of 59.5 per cent, due to the fact that much of this material was distributed in conference work in the field during the year.

Most splendid support and co-operation have been accorded our program of work by the entire trade and educational press. Nearly every issue of the press has carried some article or announcement relative to some phase of the Bureau's program of apprenticeship.

The Fourth Annual Instructor Training Conference for plumbing and heating instructors held in Pittsburgh in co-operation with the Carnegie Institute of Technology and the University of Pittsburgh was pronounced one of the most successful ones yet conducted. 21 instructors from 7 states and the District of Columbia were in attendance at this conference. This is a slight decrease in the number attending under the 1927 conference, there having been 30 in attendance at the 1927 conference. This is because of the fact that an annual summer instructor training conference was conducted in Columbus, Ohio, and the Ohio instructors attended this conference instead of coming to the annual national conference. One of the outstanding features of the conference this year was a series of technical and educational lectures given by educational and industrial leaders, and a series of industrial films of particular interest to those who are engaged in our industries.

This annual instructor training conference is being watched by educational leaders all over the country because it is a piece of pioneering work in the field of teacher training. It has proven so effective that like conferences are being organized in other sections for our industries and other industries are following the example which we have set.

The first annual state teacher training conference was conducted last summer in the State Capitol Building at Columbus, Ohio, under the auspices of the Ohio State Board of Vocational Education, Ohio State University and the Plumbing and Heating Industries Bureau. This conference was attended by all of the fourteen plumbing and heating instructors in the state of Ohio. The Ohio people were assisted in the conference by two members

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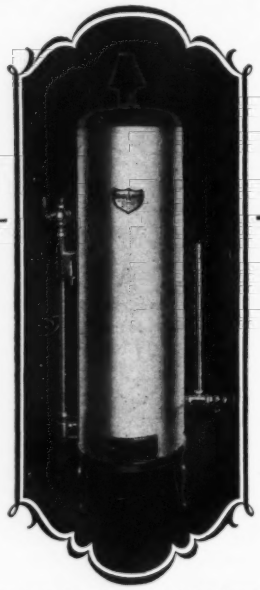
You Get It in the

STAR DEE



The Star Dee Water Heater combines all of those features which make for efficiency, economy and moderate cost.

The Heating element of the Star Dee Water Heater is in the middle of the heater, surrounded by water. Thus, heat loss is reduced to the absolute minimum. In the Star Dee, we have combined everything you have wanted in a water heater —ask us or your jobber now.

"Insured with the safety gas control"

STAR DEE WATER HEATER CORP.

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TRAGESER

PLATE T 100

Our catalog T shows this White Metal Sink in complete detail. Write for it and for complete information regarding the Trageser Line.

John Trageser Steam Copper W'ks

Established 1850

Grand St., Maspeth, L. I., N. Y.

of the regular staff of the national conference, Professor Dibble of the Carnegie Institute of Technology and a representative of the Plumbing and Heating Industries Bureau. The Ohio conference was made an annual affair.

Realizing the benefits to be derived from such a short instructor training conference, the people in Texas are following the example set by our national conference and the Ohio conference and are conducting this summer under the auspices of the Texas State Board of Vocational Education, the University of Texas and A. & M. College, a conference for the plumbing and heating instructors of Texas and surrounding states. Several new training programs were inaugurated in Texas and surrounding states through the field work of the Plumbing and Heating Industries Bureau and there was a definite immediate need for the training of 14 or 16 instructors to handle these classes.

While the Apprenticeship Committee has conducted with considerable success the annual national teacher training conference for four years, it is not assumed that this conference can meet the needs throughout the country. In fact the annual Pittsburgh conference is a temporary institution, but is meeting a definite specific need and must be continued until the problems met in that conference are shouldered by the various states throughout the country. The recent developments indicate that state educational authorities and the industry throughout the various states are realizing their responsibilities in this connection and as a consequence, are beginning to make provision for an adequate supply of skilled and trained instructors because no school can be more effective than the instructor in charge.

Most foremen in the plumbing and heating industries are equipped by long experience to handle the mechanical and technical side of their job. On the other hand, few are equipped, either by experience or training, to handle the managerial and supervisory phase of their work. The industry is beginning to recognize the importance of the supervision of men, materials and work and as a consequence, is seeking assistance in these problems. The Bureau has prepared a pamphlet which outlines what assistance is available and distributed this to every local

NEBRASKA

Top row: Frank Gage of Fairbury; John A. Anderson, president of the Nebraska association, and R. E. Krimlofski, both of Omaha. Bottom picture: Mrs. R. E. Krimlofski, Richard Krimlofski, Mrs. J. A. Anderson, Richard Anderson and Doris Anderson, all of Omaha. Taken at Memphis convention

association throughout the country. A foreman training service is available through state departments of vocational education without cost to associations. The Bureau is glad to make contacts for associations and to assist them in arranging suitable programs for foremen in their industries.

A. R. McGonegal, plumbing inspector of Washington, D. C., at Memphis convention

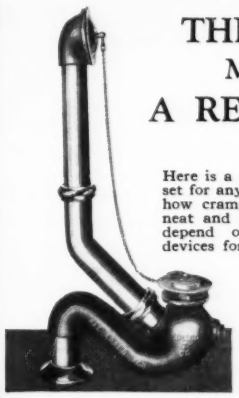
In 32 cases day trade or trade preparatory classes have been provided. For the past several years the Apprenticeship Committee has discouraged this form of training because part-time apprentice classes are very much more effective. An all-round trained skilled mechanic cannot be trained in the school shop and classroom alone. Neither can he be adequately prepared on the job without the assistance of the school. The job of training is a joint responsibility. It has also been found that a very large per cent of the boys trained in day trade or trade preparatory classes never go into the industry. Some of these programs are very effective, but on the other hand, in some cases it has been thought that such programs have reacted to the detriment of every branch of the industry, as an injustice to the boys taking the course and as a waste of public funds. Such all-day trade training programs for our industries are not recognized, promoted or sponsored by the Committee and the Bureau.

Any town or city which has a sufficient number of apprentices to justify the organization of a class should provide part-time day classes which meet four hours a week on the employer's time. 39 part-time training programs have been inaugurated. Such classes can usually be organized in cities of 50,000 population and above.

In some cases evening school classes are provided instead of part-time day classes. These, however, are usually provided for apprentices in their third and fourth years. 104 of these training programs are now in operation.

In cities of 25,000 to 50,000, too small to provide suitable part-time training programs, the itinerant teacher plan, originated by the Wisconsin people in the Fox River Valley in Wisconsin, has proven very effective. There are now four such circuits in the state of Wisconsin which provide for instruction for apprentices and journeymen in 15 of the smaller towns and cities. This method has proven so effective that it is spreading to other sections of the country. The state of Ohio has recently inaugurated two such circuits. At the state conference in Oregon recently held, it was decided that such a circuit would be inaugurated in that state.

Where instruction cannot be provided by either of the methods listed above, the dull season short unit course provides for the gathering of all of the apprentices in any section or state in some centrally located place for a period of instruction during the dull season. This program has worked out very effectively in the state of North Dakota through the State School at Wahpeton and is being inaugurated by Dunwoody Industrial Institute next winter to meet the training needs in the state of Minnesota. Such a dull season short unit course program is very effective in a state of many small cities. The state of Tennes-



THE "EDELCO"
MODEL T-50
A REAL FEATURE TRAP

Here is a self-scouring Trap that can be set for any position of the tub no matter how cramped you are for space. It is neat and easy to install as it does not depend on partitions or mechanical devices for its operation. It saves time and money and does a better job. A quality trap at a reasonable price.

Write for full details.

EDEL MFG. CO.
3030 Frankford Ave.
PHILADELPHIA :: PA.

What Does Vapor Heating Installation Cost You?

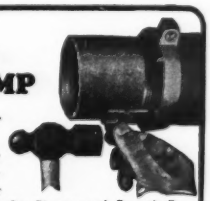
If the installation costs have always been "the rub" for you in vapor heating work, let us show you how the Gorton Single Pipe Vapor System will overcome this problem.

We can prove what we say.
Write and ask us to do so.

Gorton Heating Corporation
Formerly Gorton & Lidgerwood Co. (Established 1887)
96 Liberty Street New York City

Stop pipe thread leaks with SMOOTH-ON No. 1 in a SMOOTH-ON CLAMP

Sizes for 1-in. to 12-in. pipe.



QUICK, easy, cheap Holds for the life of the line—any pressure, any temperature, iron, brass, or copper pipe. Get Smooth-On Clamps and Smooth-On No. 1 from nearest supply house or from us.

Write for the free Smooth-On Handbook.

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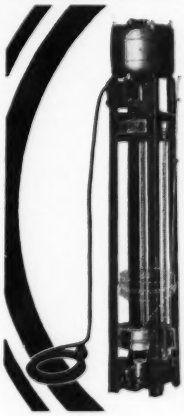


Big Money for you!

There's big money for you selling the Stark Automatic Electric Basement Drainer to householders with wet or flooded basements. Will dry the average flooded basement in two hours and *keep it dry*. Your customer will be sold on sight! Write for illustrated circular No. 303 today.

STARK PUMP COMPANY
17128 Mt. Elliott Ave.
DETROIT : MICHIGAN

Stark
AUTOMATIC ELECTRIC BASEMENT DRAINERS

see is at the present time considering such a program for that state.

Where instruction cannot be provided by any of the methods listed above, apprentices should be enrolled in the Home-Study Course for Apprentice Plumbers. This course has been prepared especially for those who cannot get instruction by any other means and is limited to boys actually engaged at the trade.

There are in the United States approximately 14,300 apprentice plumbers, 6,745 or 47.1 per cent of whom are in schools; 83,000 journeyman plumbers, 1,895 or 2.28 per cent of whom are in schools.

According to published statements in the American Builder-Economist, there are needed annually in the plumbing trade, 26.3 per cent new men per each thousand to take the places of those who die and retire. This means that there should be an incoming each year of 2,182 journeyman plumbers, and that taking five years as the period of apprenticeship, there should be 10,910 apprentice plumbers in constant training.

According to published statements in the official bulletin of the National Association of Building Trades Employers, the American Medical Association gives the average number of years of service of journeyman plumbers as 39.8 years. On the basis of say, 40 years, there should be on an average of 2,075 journeyman plumbers coming into the trade each year to fill the places of those who die or retire, and taking five years as a period of apprenticeship, there should be 10,375 apprentice plumbers in constant training.

The closeness of the estimates of these two reliable organizations seems to indicate that they are very accurate. Striking an average of the estimate of both organizations, we find that there should be in constant training 10,642 apprentice plumbers.

This does not make allowance for the great number of apprentices who start a period of apprenticeship and drop out to go into some other line of work, nor for the provision of a greater number of mechanics needed to take care of the enlarged business which should result from the present plans and promotional effort. If more plumbing fixtures and materials are manufactured and sold, more mechanics must be provided to install them.

According to these accurate and reliable estimates, it would seem that we have inducted into the industry about the proper number of apprentice plumbers, but that there should be an additional 3,897 apprentice plumbers in training.

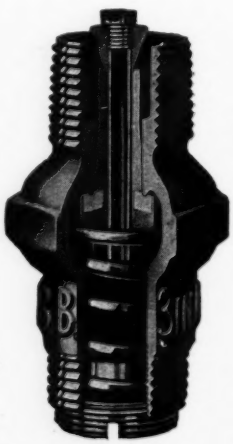
There are 133 schools in 112 cities throughout the country offering instruction to apprentices, 107 of which offer instruction in plumbing only, 3 offer instruction in steam-fitting only and 23 offer instruction in both plumbing and steam-fitting. Only 73 or 48.9 per cent of the 149 cities of population of 50,000 and above have organized classes. There are 76 cities of population of 50,000 and above in which no instruction has as yet been provided. 24 of these cities are active prospects for the organization of classes, being included on our list of prospective schools. This list is made up from inquiries received from time to time from officers of local master plumbers' and heating contractors' associations and from school officials.

Our efforts should not cease until classes have been organized in all cities of 50,000 population and above. 76 cities are prospects in this classification. 24 or 31.5 per cent of these are interested and are considering the matter of providing classes. Practically none of the 83,000 journeyman plumbers have had opportunities of trade training during their period of apprenticeship, since training provisions were not inaugurated in schools until

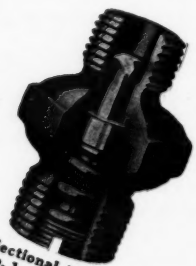
BOSTON BRASS

Relief Valves

Sectional View 2 in 1 Valve Pressure Vacuum



Sectional View 3 in 1 Temperature Pressure-Vacuum Valve



Sectional View No. 1 and No. 10 Pressure Valves

When they ask for the best there is, give them B. B. Boiler Relief Valves

They are the watchdogs of the boiler and the heating system and they are faithful in their protection against high temperature, vacuum or excessive pressure. Send your name to us for particulars.

BOSTON BRASS COMPANY, *Waltham, Massachusetts*

about four years ago. The problem of upgrading journeyman plumbers is, therefore, one which should be given immediate attention.

Summary and Recommendations

The information here presented seems to warrant the following conclusions:

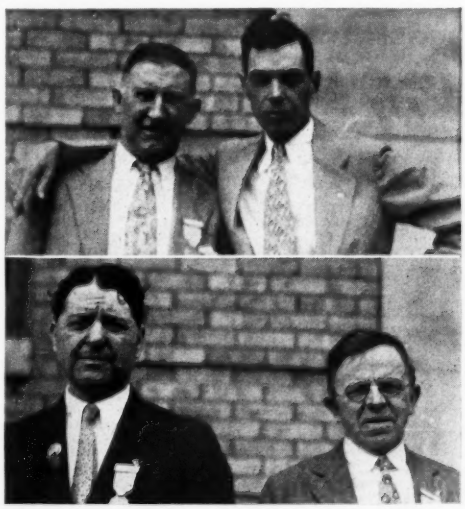
Fair progress has been made in the organization of classes for apprentice plumbers, but promotional effort should be continued in this field until all cities of 50,000 population and above have been provided training programs and until the number of apprentices who are not now receiving instruction have been provided with instructional facilities and added effort should be devoted and immediate attention given to the organization of classes for the upgrading of journeyman plumbers.

The services in the field of home-study training in plumbing should be continued with added promotional effort.

A national program of foremanship training should be launched and assistance provided in two directions: (a) in the preparation of foreman training literature for the use of conference leaders, and (b) assistance in the organization and conducting of conferences, both state and local, through making contacts for the industry with state boards of vocational education.

The present national instructor training course should be continued as an annual event as temporary until the already established teacher training agencies will assume these responsibilities. The fifth annual conference should provide for two distinct programs, one for those who have attended previous conferences and another for those who will attend the conference for the first time. Assistance should continually be given to state boards of vocational education and to state educational institutions in providing short intensive teacher training conferences.

The program of preparing instructional material for both texts has been completed, but this material should be kept under constant revision. The present supply of material in both texts will probably be exhausted before the end of a two-year period which will mean that a new reprint will need to be made by that time.



INDIANA

Top picture: D. R. Ramsey and R. M. Cotton, both of Indianapolis. Bottom picture: J. A. Gallivan of Muncie and G. T. Watson, secretary of the Indianapolis association, at Memphis convention

Dearborn

BASIN SUPPLIES

Long wearing and always giving the utmost in service is our claim for Dearborn Basin Supplies.

And it's more than a claim, too. It's been proven time and again in actual work.

When the name "Dearborn" appears on a piece of brass goods, you can be sure it is the best.

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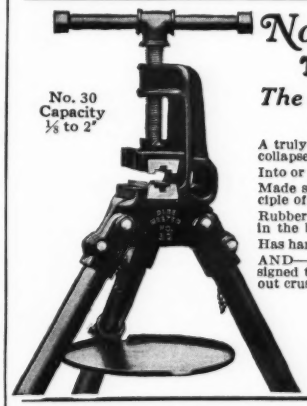

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The Most Practical Vise Unit You Have Ever Seen

A truly portable unit, entirely self-contained, that collapses into an unbelievably compact form.

Into or out of action in 30 seconds.

Made sturdy and rigid by new tapered pin principle of locking legs into place.

Rubber tips on legs make possible its use anywhere in the building or home.

Has handy pipe bender and tray.

AND—*jaws that are different!* Scientifically designed to hold ALL kinds of pipe or tubing without crushing or mutilating.

Write now for complete description o the PIPEMASTER. You will want to know all about it.

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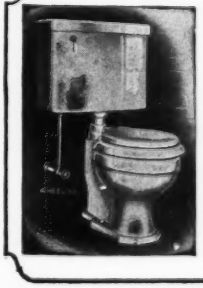

High Grade Plumbers Ware—Two-Fired Vitreous China

Plate 100-E Lavatory on Pedestal. Two sizes—24x20 inches and 26x22 inches.

Plate 126-E "The Tranquil" all white Syphon Jet Water Closet Combination, including—Plate 125-E concealed jet syphon, to rough in at 12 inches: Plate 218-E large size tank, with special fittings.

Reference — Domestic Engineering Catalog Directory.

Because of the need for the standardization of materials in the plumbing industry and in the installation of those materials, of the need for a definite program for the conservation of material and the elimination of waste, of the need for co-ordinating the present research work which is being done by a number of educational institutions and organizations, there is an apparent necessity for a central agency to gather, interpret and make available reliable scientific information concerning these and many other phases of the plumbing industry and to co-ordinate and stimulate research activities and to provide for the presentation of the data developed in various investigations in uniform and usable form.

The Bureau has been interested for several months in the development of such a proposed program. From the past discussion and study of the problem, it would seem that such work might be done to best advantage more or less along the following lines:

a. That there should be selected a National Research Commission representative of all interests, say the National Association of Master Plumbers; the American Society of Sanitary Engineers; the American Society of Mechanical Engineers; the American Engineering Standards Committee; the United States Department of Commerce; the Amerian Institute of Architects; the Eastern and Central Supply Associations; the National Research Council; and colleges and universities.

This commission would determine policies and give general direction and guidance to the project.

b. That funds required for the administration of such a program should be provided by the bureau, since the bureau is the industry's agency for meeting common problems, one of the most important of which is this problem of technical research.

c. That there should be a centralized co-ordinating office which would be responsible for collecting and cataloging the results of all previous research work, and for co-ordinating and stimulating technical research in the plumbing industry. This office would be the agency through which the policies and actions of the National Research Commission would be carried out.

d. That working in co-operation with the National Research Commission and those in charge of the co-ordinating office would be technical advisory commissions for each research project undertaken by an educational institution, an organization or an individual.

e. That no laboratories should be established by the National Research Commission at the Bureau or elsewhere, since there are already available all the laboratory facilities needed in colleges and universities which are anxious to participate in such a national program of technical research for our industry.

The need for a definite organized program is apparent. Such an organized effort would, without doubt, do much to standardize and simplify materials and the installation of these materials, to conserve materials and eliminate waste, and to co-ordinate and unify the technical research activities along all lines of all educational institutions, organizations and individuals who are interested in technical research for our industry.

The Responsibility of the Master Plumber

Your apprenticeship committee of the National Association of Master Plumbers strongly urges every member of the National association to give wholehearted support and co-operation to the educational program sponsored by your apprenticeship committee in cooperation with the Apprenticeship Service Department of the Plumbing and Heating Industries Bureau, because:

Valves and Fittings that make good

THE ONLY comeback that ever results after an order of Kennedy Valves or Fittings is a comeback for more.

For half a century, plumbers and steamfitters have known Kennedy products to make good in every particular. They are honestly made, reasonably priced, easily installed, and give lastingly satisfactory service.

When you install Kennedy Products, you can conscientiously guarantee uniformly good service with the assurance that Kennedy stands solidly behind their guarantees.

THE KENNEDY VALVE MFG. CO. ELMIRA, N.Y.

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Atlanta Chicago El Paso Salt Lake City
Los Angeles San Francisco Seattle

KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS

a. The contracting branch of the industry as well as every other branch, will profit if a proper supply, no more, no less, of trained, skilled mechanics is provided to take the places of those who die and retire and to take care of the enlarged business resulting from present promotional plans and efforts.

b. An inadequate scheme of apprenticeship and apprentice training is a detriment to every branch of the industry and a menace to public health.

c. An inadequate program of apprenticeship and apprentice training produces unskilled, untrained, inefficient mechanics, who being unable to carry on as journeymen, drift into the contracting branch of our industries as a last resort.

d. A large percentage of so-called "curb-stone" plumbers, who furnish a type of undesirable competition, are the product of an inadequate program of apprenticeship and apprentice training.

Conclusion

In many respects this period has been marked with more and greater accomplishments than any other like period in the history of the development of the national program of apprenticeship for our industries. Contractors and journeymen are realizing more and more that their interests, as individuals and as groups, are bound up and inter-related with a definite, organized systematic program of apprenticeship and apprentice training, and as a consequence are giving more thought and energy to the initiation and inauguration of definite state and local programs. Manufacturers have always been keenly interested because they realize that their products are a liability to them until they are properly installed by skilled and trained mechanics. Educators feel keenly the responsibility which rests upon their shoulders in co-operating with the various branches of our industries to provide a proper supply of skilled and trained mechanics.

The most outstanding accomplishments of the year were the revision of the "Standard Text on Plumbing,"

Top row: E. B. Clayton of Denver, president of the Colorado association; William F. Loftus of Atlanta, Ga. Bottom row: J. O. Montrief of Ft. Worth, Tex.; W. C. MacKenzie, honor student at Lane Technical School, Chicago, at Memphis convention

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THE new Wessels Electric Water Heater has all the advantages usually attributed to electrical equipment. Clean, even heat, and the utmost convenience in operation. In construction and durability the new Wessels is in keeping with its operating qualities and appearance.
There are three types of control and a special heater for installed tanks—making a complete line from which your customers can make just the right selection.
Write us for specifications and details of sales possibilities. Your jobber will handle your order.
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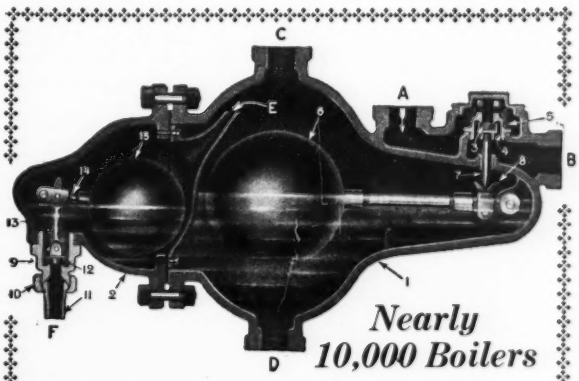
QUALITY



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Now Protected With McAlear Water Feeders!

The "McAlear" is NOT new. This large number of successful installations is your guarantee!

McAlear Duplex Feeder No. 826 (Illustrated) feeds water "Direct-to-Boiler" and discharges excess water into the sewer; its action is positive and dependable.

The McAlear Water Feeder is built in several types—there is one to fit your requirements.

Write for our latest bulletin today!

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QUALITY-FIRST SPECIALTY PRODUCTS

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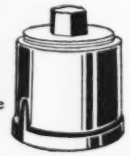
Washington PLUMBING SPECIALTIES



The first thing that Washington Metal Products do for you is to simplify your work to the greatest degree. Everything that could possibly be done to make Washington specialties the highest, finest grade has been done in the manufacturing process before you receive them. And moreover, each item is thoroughly inspected before being passed into stock.

THE WASHINGTON METAL PRODUCTS CO.
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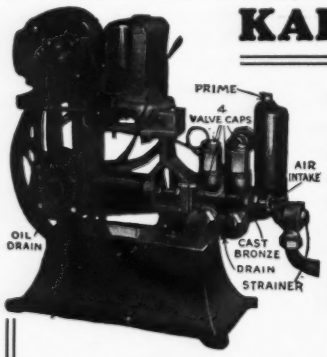
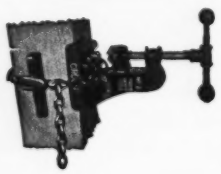
KALAMAZOO



Practically noiseless in operation, equipped with automatic switch, self-priming vacuum chamber, splash oiling system, Kalamazoo Water Supply Systems give unusual, trouble-free service.

Ask your jobber.

National Water Lift Co. KALAMAZOO, MICHIGAN



The Crown Post Vise is serving hundreds of satisfied users all over the country.

These users are the ones who tell us of the Crown's remarkable time-saving properties and of other greater economies that it effects for them.

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the initiation of a foreman training service for the industries, the development of a proposed program of technical research for the plumbing industry, and specific definite assistance in the field in the inauguration of training programs in approximately all the states of the western region.

The program of work next year contemplates the launching of a national program of technical research for the plumbing industry, increased emphasis in the development of training programs for journeyman plumbers, and assistance to state departments of vocational education and state educational institutions in providing a foreman training service, instructor training service and two or three-day short courses for master plumbers.

Grateful recognition is given for the splendid co-operation of the trade and educational press; for the assistance of the National Association of Master Plumbers; the United Association of Journeymen Plumbers and Steamfitters; the general manager, the secretary, the office manager and department heads of the Plumbing and Heating Industries Bureau; and, most of all, to the apprenticeship director and his associates in the apprenticeship service department, who have labored untiringly in the completion of the text and in the many other activities undertaken during the year.

Special recognition is given for the outstanding services of representatives of the National Association of Master Plumbers, such as Mr. Thomas of Texas, Mr. Fullman of Oregon, Mr. Hughes of Minneapolis and many others who have given valuable assistance, and to Mr. Burke, general secretary of the United Association of Journeymen Plumbers and Steamfitters, for the most splendid and hearty support accorded our efforts by his organization, and to many of the business agents of local unions, throughout the western states particularly.

The committee's efforts are bearing fruit and much progress has been made in the movement which had its origin at the New Orleans meeting of the National Association of Master Plumbers in 1921. Notwithstanding the past accomplishments, however, the movement is in its infancy and there is much yet to be done. The good that will accrue to the industry in the raising of standards in all branches of the industry cannot be measured and will redound to the benefit of the public as well as everyone in the industry.

Respectfully submitted,
Apprenticeship Committee.
John A. Quinn, chairman; Michael J. McGrath, William G. Miller, Harry G. Newman, Harry S. Smith.

TRENTON MASTERS PLAN OUTING

The Master Plumbers Association of the City of Trenton, N. J., has decided upon the date for its annual outing, it is announced by Secretary Ira C. Hendrickson, but has not yet picked the place. The affair will be held on August 16, and will be managed by a committee consisting of Fred L. Nitz, John Mickels and Clifford Jefferies.

LOWER BUCKS MASTERS INSPECT PLANT

Members of the Lower Bucks and Montgomery County (Pa.) Master Plumbers' Association were guests, June 21, of the Freed Heater Co. In the morning, the master plumbers were shown through the Collegeville plant of the company, and in the afternoon, after enjoying luncheon as the company's guests, the group took a tour of inspection of the Oaks plant of the company.

C. H. Hutchinson and H. A. Stover are planning the erection of a 26x48 ft. 2-story and basement business building in Sidney, Nebr., to be occupied by the plumbing and heating business of Hutchinson & Stover.

Woman's Page

At the recent convention of the National Association of Master Plumbers, held in Memphis, Tenn., Thomas F. Nolan, retiring president, said, in his report of the year's accomplishments: "Too much cannot be said in the way of commendation of the Women's Auxiliary of the National Association." This statement shows that those in closest touch with the work of the trade organizations, those who have the good of the industry most at heart, realize more than most others the influence for good which is being exerted by the members of the women's auxiliaries.

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Detroit Auxiliary Holds Picnic at Wall Lake

The Women's Auxiliary to the Detroit Association of Master Plumbers met at the summer home of Mrs. Mesnard at Wall Lake on Thursday, June 28, for their usual June picnic. About thirty members drove out and many of the members brought their children. The weather man supplied lovely weather for most of the day, although it rained before the guests departed. A delightful luncheon was served on the big, screened-in porch. After luncheon, games of all kinds were enjoyed by children as well as grown-ups. Mrs. John Nawrot took moving pictures, which everyone is looking forward to seeing in the fall. Mrs. M. Snyder and Mrs. C. Tuck, who had attended the national convention in Tennessee, were present and gave an interesting account of the proceedings, and also showed pictures which they had taken there. Arrangements were made for the next picnic to be held on July 18 at Belle Isle, where the men will join the ladies at supper. By means of the various picnics held, members keep in touch with each other during the summer months, and feel refreshed for the fall activities.

Jessie Belle Strachan

Master Plumber's Daughter Wins Prize for Salesmanship Talk

Jessie Belle Strachan, the eleven-year-old daughter of a Detroit master plumber, recently won the prize, at the Scripps School, for the best talk on salesmanship. She chose a plumbing specialty as her subject. Mrs. Strachan is a member of the Detroit Women's Auxiliary, and members are proud of the honor conferred on little Miss Strachan.

Worcester Auxiliary Elects Officers

The Women's Auxiliary of Worcester, Mass., recently elected new officers for the coming year. Mrs. Winifred Kane was chosen as president, Mrs. Rose Loan as vice president, Mrs. Theresa Gilligan as secretary, and Mrs. Albertina Ostberg, treasurer. At this meeting plans were made for an outing. After the business session, several games of cards were enjoyed and refreshments were served.

Montclair Auxiliary Holds Theater Party

Members of the Women's Auxiliary of Montclair and Vicinity left their New Jersey homes on Wednesday, June 27, and had luncheon in New York City, later attending a performance of "Good News" at the Forty-sixth Street Theater. The ladies, after a very enjoyable time, reached home in the early hours of the morning.

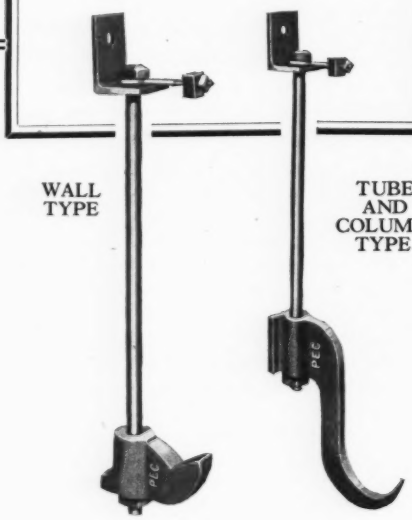
Officers Elected by Miami Auxiliary

The Woman's Auxiliary to the Miami Master Plumbers Association held a meeting at the home of the president, Mrs. Roy E. Martin, 1232 N. W. Seventh avenue, June 7. An election of officers took place and the officers elected for the ensuing year are: Mrs. H. J. Sanborn, president; Mrs. A. T. E. Engebretson, first vice president; Mrs. Walter Jester, secretary; Mrs. J. B. Forbes, treasurer; Mrs. Charles Jorden, sergeant-at-arms; Miss Elva Moss, historian. One new member, Mrs. Helmeric, was admitted.

After the meeting, luncheon was served. Miss Elva Moss and Mrs. Robert McClure assisted Mrs. Martin in entertaining. All those present enjoyed a very pleasant gathering. This closed a very successful year and the next meeting will be held September 12. Only social meetings are to be held during the summer months.

Top picture: Mrs. Victor J. Petersen, past president, and Mrs. Carl Seipp, president of the San Francisco Women's Auxiliary. Middle row: Mesdames H. R. Fielden of Los Angeles; B. A. Newman of Fresno, William Goss of San Francisco, W. S. Goodrich of Los Angeles, H. G. Newman of Oakland. Bottom row: Mesdames Harry Hoopes, H. P. Wilson, J. V. Young, Curtiss N. Gilley, Jack Camp. Photos taken at the annual convention of the California Merchant Plumbers' Association

P. E. C. Radiator Hangers



Manufactured for all types of wall, column and tube radiation.

Adjustment 2½ inches.

Quickly and easily installed.

Only one bolt is necessary to securely fasten hangers to wall.

PRICES QUOTED ON SPECIFICATIONS

Write for Details

POWER EFFICIENCY CORPORATION

137 ARTHUR STREET, BUFFALO, N. Y.

New Business Ventures

Hollywood, Calif.—L. E. Bradley has engaged in the plumbing and heating business at 5066 Vineland avenue, under the name of the L. E. Bradley Co.

Seattle, Wash.—The Norton Heating & Plumbing Co. has been incorporated, with a capital of $12,500, by E. H. Norton, R. B. Norton and others.

Far Rockaway, L. I., N. Y.—The Nassau Plumbing & Heating Co. has been organized and incorporated by P. Nordlinger and associates. The new firm will operate a plumbing and heating contracting business.

Portland, Ore.—E. A. Bohren and E. F. Johnson have engaged in the plumbing and heating business at 453 Burnside, under the name of E. A. Bohren.

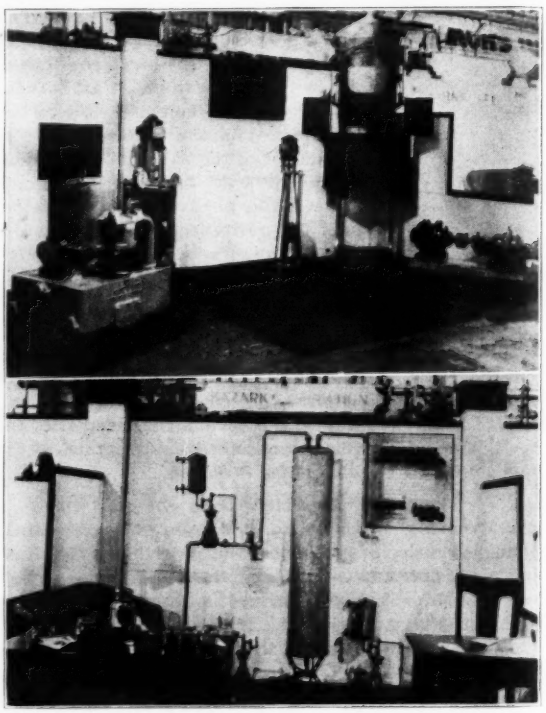
New York, N. Y.—P. Wellins, 2382 Grand Concourse, and associates, have organized and incorporated the S. M. Plumbing Co., with a capital of $10,000, to operate a plumbing and heating business.

Minot, N. D.—The Neil Plumbing & Heating Co. has started in business under the direction of W. S. Neil, formerly with the Minot Plumbing & Heating Co. The new company will have an office in the Glazer block.

Portland, Ore.—The Long & Asher Plumbing, Heating & Repair Shop was recently opened at 455 East Forty-seventh street, North.

Totowa, N. J.—Frank Gloor has organized the firm of Frank Gloor, Inc., with a capital of $10,000. It is planned to establish a plumbing and heating business.

Minneapolis, Minn.—Fred C. Stiller, formerly co-partner with Otto F. Kohl in the firm of O. F. Kohl & Co., 828 Marquette avenue, has opened a new plumbing and heating establishment at 1012 Second avenue, South, to be known as F. C. Stiller & Co.



Exhibits of the Chicago Pump Co. and Bazark Corporation at the recent convention of the Illinois Master Plumbers' Association

A PEEVE

A smart-cracking rummy,
Who thinks he is funny,
Is about to meet up with his doom,
For the next time he croaks
"Hello Soaks—I mean Folks,"
I am planning to shoot him,
Boom! Boom!

M. C. C.

"YES," SHE COUGHED

We had just read an advertisement in which a cigarette manufacturer printed the picture of a famous society lady, and said she had been converted to his brand.

We threw on our hat and coat and dashed out to interview the lady.

The first suspicious circumstance was that, although the lady was holding a lighted cigarette when we were admitted to the room, there was a thin trickle of smoke coming from the nostrils of her maid, who stood nearby.

"Is it true," we asked, "that you have become converted to New Silver cigarettes?"

(From this point each * will represent a cough.)

"I am*happy**to*say**that such***is*the********!"

"Is it true you have tried every other brand?"

"*****************"

"Have you ever walked a mile for any brand?"

"*****************"

"May I try one of your New Silver Cigarettes?"

"*****************"

Our next question, having lighted up, was:

"*****************?"

To which the society lady answered:

"*****************"

L. N. O'F., Los Angeles, Calif.

ANOTHER PEEVE

Another cluck
Who grates on me
Keeps sounding off
"Let's make whoopee!"

B. F. A., Albany, N. Y.

SOMEONE WOULD HAVE BEEN PROVED INSANE ON THE NEXT QUESTION

The prisoner at the bar was being examined in lunacy proceedings.

"Who was our first president?" asked his lawyer.

"Washington."

"Correct. Who was our second president?"

"John Adams."

"Correct." The lawyer paused.

"He's doing well," whispered a friend of the prisoner. "Why don't you keep on?"

"I'm not sure who was third president myself."

WALWORTH KEWANEE CRAFTSMAN.

BIGGER AND BETTER FAIRIES

The lad was eleven years old, and he had a tooth that was loose.

The family was urging him to get it out and over with. At last his mother said:

"Let your father pull it out. You know, I've heard of a good fairy who puts ten-cent pieces under the pillows of little boys who are brave and do what they are told."

The youngster cried on for a minute, and then, between his sobs, said:

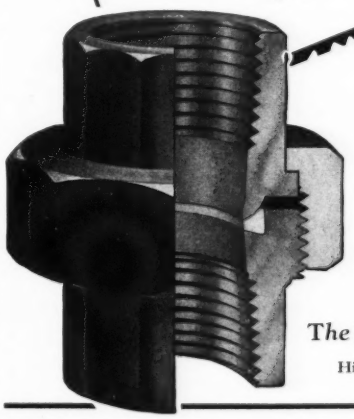
"Yes, an' I've heard of another good fairy who puts quarters there."

F. S. K., Chicago.

And that, in our viewpoint, constitutes the most profitable method of bidding.

L Y T.

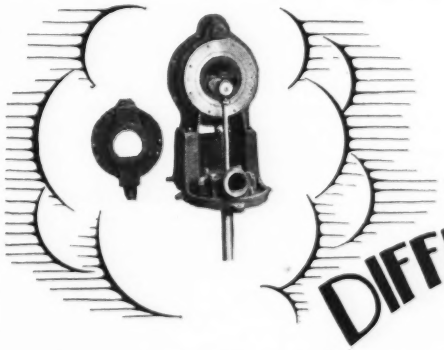
Malleable Iron Body
—Brass Seat—Made
as good as a union
should be made.



Ask Your Jobber

The KING UNION CO.
(Incorporated)
Hillsgrove, Rhode Island

THE JACK UNION



DIFFERENT

Alamo Dorward Power Head

1. Produces straight line motion.
2. Is absolutely noiseless in operation.
3. Has no connecting rod—no cross head.
4. Runs equally well in either direction of rotation.
5. It is a perfect rotary movement and all parts turn complete cycles thereby eliminating all pins, walking beams and the like.
6. Has no oscillating parts.
7. All gears are machine cut and close running and noiseless.
8. All parts run in a bath of oil and therefore require no pumps or devices for forcing oil to remote places.
9. Every working part is entirely enclosed and dust proof.
10. Requires very little headroom due to its low stature.
11. These power heads are equipped with bosses for applying a belt tightener on either side of the machine and also an air pumping attachment can be readily applied when occasion demands.

Ask us for full facts and prices of the Alamo Dorward today

ALAMO ENGINE COMPANY
HILLSDALE ◆ MICH. ◆ U.S.A.

Overton Roof Flashing

You've fulfilled your pledge of highest quality when you install Overton Roof Flashings for your customers.

Order them from your jobber —insist upon the name, Butler.

BUTLER MFG. CO.
Minneapolis Minnesota

Economical ASCO

Asco Y and Eighth Bend Base Fittings are economical to buy, to install and to use. Front opening or back opening, as desired. Extra heavy weight but may be used with either standard or extra heavy soil pipe.

ATCHISON SPECIALTY MFG. CO.
Atchison :: Kansas

HOPPERS

Roll Rim Self-Rising Seat

For all public and semi-public places this hopper will be found the ideal equipment. It is sturdy and never gets out of order.

JONES HOLLOW WARE CO.
BALTIMORE :: MARYLAND

Dart Unions have typical Dart quality. Take one apart and you'll see why it's better.

E. M. Dart Mfg. Co.
Providence, Rhode Island
The Fairbanks Company, Sales Agents. Canadian Factory: Dart Union Co., Ltd., Toronto

Dart Unions

Bath a Day Movement

WHEN John Wesley said "Cleanliness is next to godliness," he summed up for all time the important connection between self-respect and habits of personal cleanliness. In more modern language, in terms more easily understood by children, we have the slogan which was chosen almost seven years ago, "A Bath a Day Keeps You Fit Every Way."

In launching the Bath a Day Movement, "Domestic Engineering" set up one of the most powerful of modern industrial educational campaigns. The slogan, with its easy swing and simple, direct language, is as well-known as many another which has had millions spent to popularize it.

Business men, teachers, administrative officers in boards of education, professional men—in short, men and women in all walks of life have expressed the heartiest approval of the entire movement to call attention to the relationship between the daily bath and a healthful life.

Master plumbers who have distributed copies of "The Story of the Bath," either as individuals, or as members of associations, have sometimes been surprised at the results achieved. But there is no cause for surprise. The Bath a Day movement is familiar throughout the country. All that is needed is a little aggressiveness in any community to develop a campaign which will bring the plumbing business into the limelight.

Write for full details and a copy of "The Story of the Bath."

Epigrams—For Your Use

The city of happiness is in the state of mind.

* * *

You can never tell what a woman or a jury is going to do.

* * *

About two-thirds of the bread cast upon the waters isn't returnable.

* * *

The trouble with most men who talk well is that they talk too much.

* * *

A small cottage on earth is better than a dozen castles in the air.

* * *

Alimony is the capital prize in the matrimonial lottery.

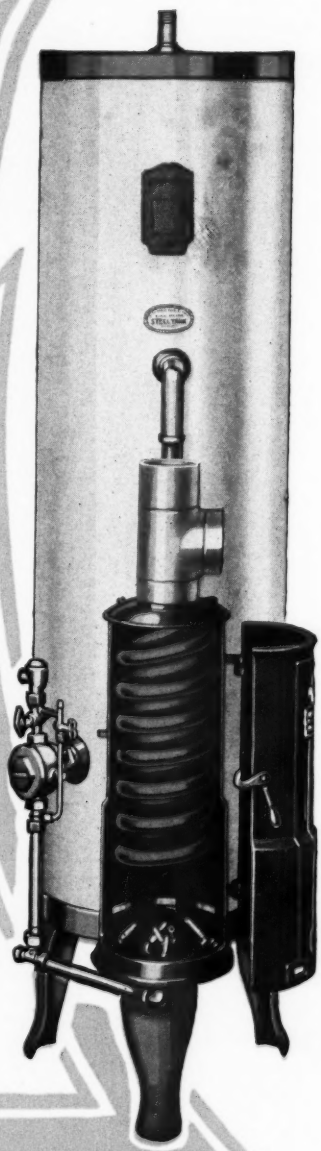
HEALTH OFFICIAL PRAISES PLUMBING

Tribute to the results accomplished by the plumber in carrying sanitation to the farmer was paid by Dr. L. L. Lumsden, senior surgeon of the United States Public Health Service, in an address before the American Society of Agricultural Engineers in the Interior Building at Washington, D. C. Dr. Lumsden declared that sanitation draws the line between disease and health and urged the society to carry the message of sanitation to their localities.

Dr. Lumsden said that the prevention of the excreta of the human body from contaminating food and thus the bodies of the people is a worthy cause. The typhoid rate has been reduced to one-sixth of its former toll of this disease by cleanliness in protection of human wastes and food supply.

Ralph A. O'Neill recently acquired the sole interest in the Kalamazoo Plumbing & Heating Co., 302 West North street, Kalamazoo, Mich.

You Don't have to Look Twice



to see real sales in this great new Hotstream Automatic Storage Heater.

And you don't have to speak twice on the unusual efficiency and economy of such an array of outstanding features as:

Heater—famous Hotstream Copper Coil type, equipped with Barber Burner;

Thermostat — Hotstream Throttling type, with dirt trap;

Tank—double extra heavy, copper bearing steel;

Pilot Light—new, ingenious "passover";

Draft Regulator—prevents down drafts, and heat losses up flue;

Not to mention the extra efficient rock wool insulation, the nine inch legs, the brilliantly colorful beauty of the rich lacquer finish.

Moreover—it's the *only* side arm job that's priced low enough and made in enough sizes to interest the *greatest* mass of your customers.

Don't postpone your profits—get started *NOW*. Write for full details.

The Hotstream Heater Company

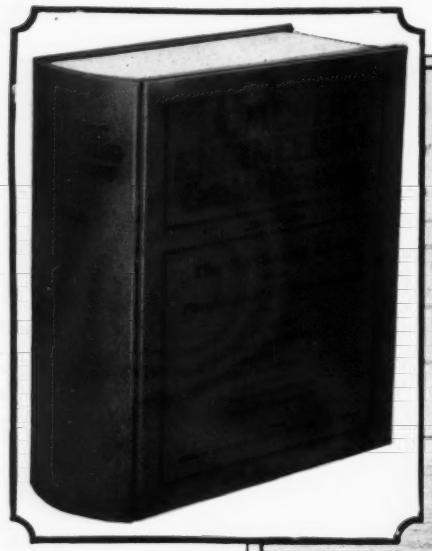
"Makers of Heaters that Heat"

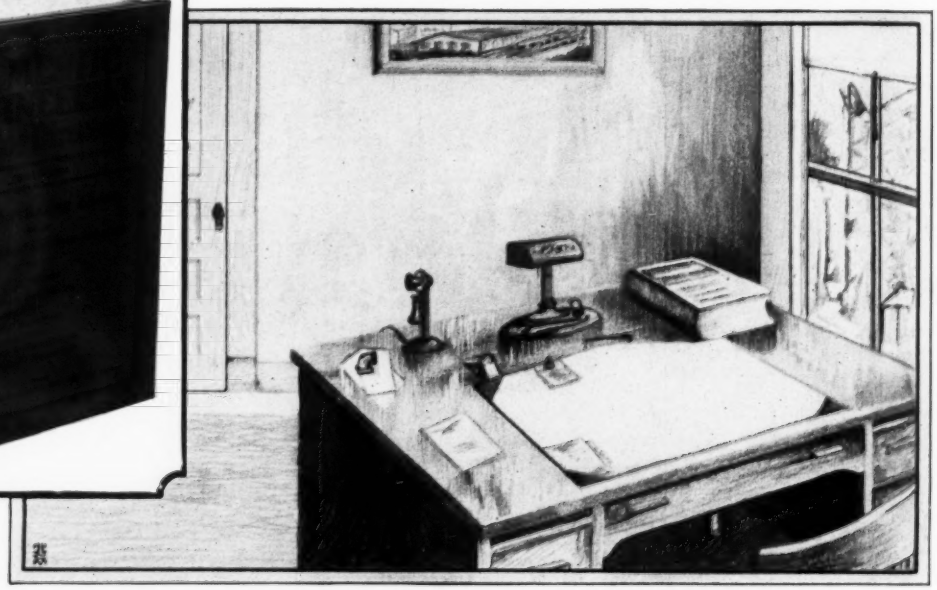
CLEVELAND, OHIO

HOTSTREAM AUTOMATIC STORAGE HEATERS

Save Time by Using~

DOMESTIC ENGINEERING CATALOG DIRECTORY





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2000 pages—13000 illustrations
Price $5.00 prepaid

Mr. Buyer:—Did you ever stop and figure out how much time you spent in finding the sources of supply of the many items you are called upon to deliver? When you stop and think about it, there's a big portion of many days eaten up, isn't there?

Of course you will be interested in finding a way to save yourself a lot of time, energy and patience, and—

That's where **Domestic Engineering Catalog Directory** comes in.

This book has been especially designed, planned and made up to relieve you of the necessity of having a cumbersome catalog file in order to locate the manufacturers of any products you are in the market for.

Between the covers of one volume you are able to find the up-to-date source of supply of any item used in the plumbing and heating field, and you can do this, rapidly, conveniently and with the utmost ease.

Please send us a copy of the 1928 edition of **Domestic Engineering Catalog Directory** in accordance with the special approval offer. We will either remit $5.00 or return the book within 30 days.

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There are many other features that will help to make your work easier and better—such as—a large catalog section that contains the catalogs of over 500 manufacturers of plumbing and heating products. You are able to find illustrated and described practically any item you may be looking for. There is also a Table and Rules section that has been compiled for the purpose of aiding you in ordering the proper sizes to meet certain requirements. You will also find much other useful information.

Because we know that after you have had the opportunity of looking over a copy of **Domestic Engineering Catalog Directory** you will wonder how you ever got along without it, we are making a special approval offer which permits you to keep the book for 30 days. If after that time you feel you have not received full value you may feel perfectly free to return the book to us. We know you will keep it—most everyone that tries it, does.

Just fill out the coupon and send it in.

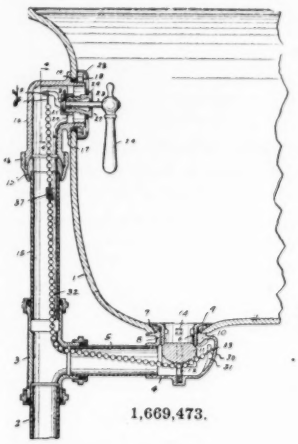
Domestic Engineering Co.

1900 Prairie Avenue **CHICAGO, ILLINOIS**

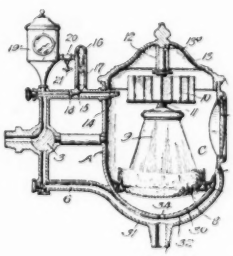
PATENTS

Plumbing Department

1,668,802. Plumbing Fixture. Frank J. Cantrell, San Francisco, Calif. A fixture of the character described comprising a casing having a pair of chambers formed therein; to-wit, an upper chamber and a lower chamber, said chambers being in communication with each other and the lower chamber having a discharge passage formed therein, a valve adapted to be connected with a source of water supply under pressure, a pair of pipes connected with the valve, one connected with the upper chamber and one with the lower chamber, said valve adapted to direct the water to either of the said pipes, a water wheel in the upper chamber, a vertically movable shaft supporting said wheel, a stationary receptacle below the shaft for a cake of soap, and a brush secured to the shaft and engageable with the soap and adapted to settle by gravity with the shaft against the soap as the soap wears away.



1,669,473.

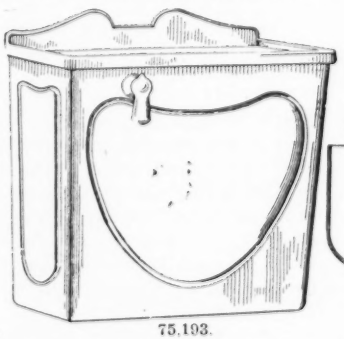


1,668,802.

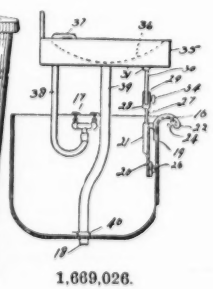
1,669,473. Waste and Overflow Equipment for Bathtubs. Howard F. Kelso, Houston, Tex. A fluid container having a waste outlet and an overflow outlet, a downwardly opening valve controlling the waste outlet, a flexible member anchored at one end and disposed underneath the valve and means associated with the overflow outlet and to which the other end of said flexible member is attached through which said member may be actuated to alternately close, and permit the opening of, said valve.

* * *

1,669,026. Lavatory Fixture. Joseph A. Seibert, Camden, N. J. A lavatory fixture comprising a supporting bracket including a post, a rest including a socket for reg-

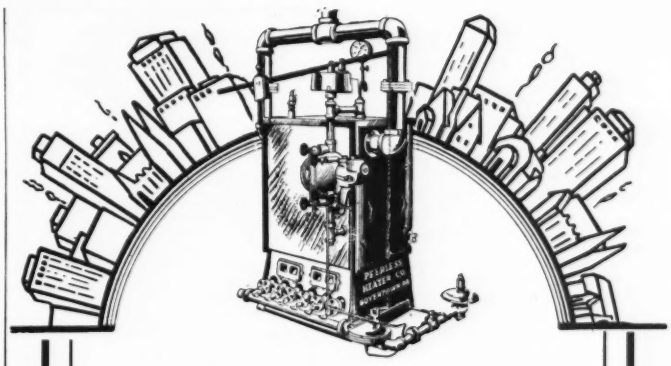


75,193.



1,669,026.

istration with said post, limbs projecting from said socket, heads at the upper end of said limbs, lavatory supporting



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¶ Prices are attractive.

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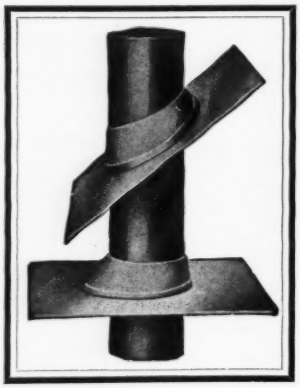
The Peerless Heater Company
Boyertown, Pennsylvania

If it wasn't a fact that Oatey Roof Flashings are easy to install, service-proof after installation and really "always dry," contractors would n't keep coming back for them for every new job they do.

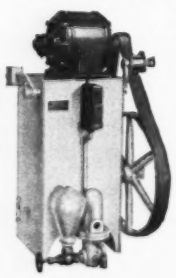


You'll keep coming back, too, after you install your first Oatey and you'll learn to depend upon this roof flashing for real time saving, both at installation and after. The first work you do on an Oatey is all you do.

L. R. OATEY CO.
5500 Walworth Ave.
CLEVELAND, OHIO

New!

The Kewanee Small Deep Well Water System



Just what you have waited for. A small deep well outfit with capacities from 170 G. P. H. to 300 G. P. H. Differential plunger type—pumps air with water without separate air pump. Pumping unit enclosed—running in bath of oil. Motor driven and automatically controlled. Tension on pumping unit belt taken up by weighted belt idler. Write for catalog describing this and 200 other Kewanee Systems.

KEWANEE PRIVATE UTILITIES COMPANY
417 S. Franklin St. :: :: Kewanee, Ill.

KEWANEE

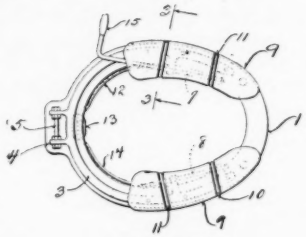
Manufacturers of water, light and sewage disposal systems

DEALER CORRESPONDENCE INVITED

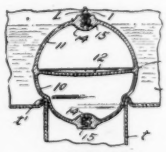
rails secured to said heads, a lavatory mounted thereon so as to be swung about the post or raised and lowered thereon, said lavatory having an outlet, a valveless faucet on the lavatory, and conduits connected with the valveless faucet and outlet and adapted to be connected with the faucet and outlet respectively of a bath tub when the lavatory is positioned over said bath tub.

* * *

1,668,729. Seat construction for Sanitary Toilets. Edward P. Olsen, Marinette, Wis. In a sanitary toilet, the combination of a bowl having a flushing orifice, a seat mounted above the bowl and adapted to receive protecting sheets, stripping means for removing the sheets from the seat and depositing them in the bowl, and mechanism having a portion located below the flushing orifice and actuated by the flushing stream.



1,668,729

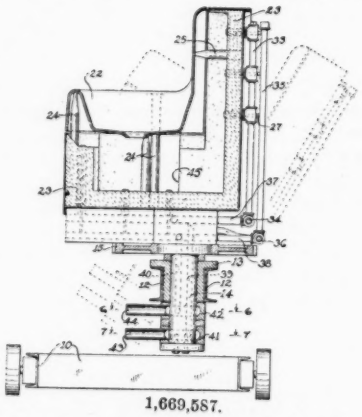


1,668,803.

1,668,803. Flush-Tank Bulb. Frank A. Cigol, Paterson, N. J., and Fred Thomas Roberts, Yonkers, N. Y., assignors to Paramount Rubber Consolidated, Inc., Tuckahoe, N. Y. A double ended rubber flush tank bulb having spuds at its top and bottom respectively and a rubber diaphragm dividing the bulb into two chambers.

* * *

1,669,587. Enameling Cradle. Anton Frank Brotz, Kohler, Wis., assignor to Kohler Company, Kohler, Wis.



1,669,587.

An enameling cradle, comprising a cradle member, a heat insulating lining therefor, and means for supplying heat within the cradle during the eameling operation.

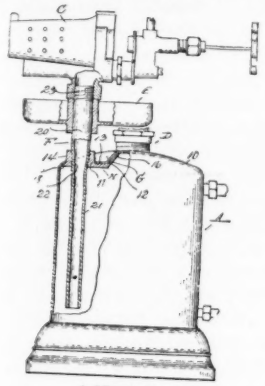
* * *

1,670,112. Torch. Otto J. Groehn, Detroit, Mich, assignor to Clayton & Lambert Manufacturing Company, Detroit, Mich. In combination with a receptacle, a standard, said receptacle having a portion of one wall offset from the remaining portion adjacent thereto, forming crescent shaped web portion and a flange portion connecting the said offset web portion with the said remaining portion, and means for supporting said standard from said offset portion whereby the flange portion serves as a brace.

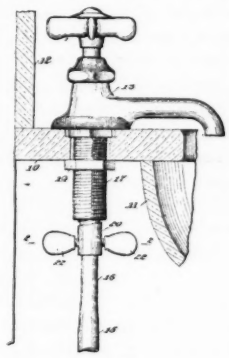
* * *

1,670,219. Faucet Connection. Albert R. Smith, Jesup, Ga. A faucet connection between the downward extension

of a faucet and the pipe beneath it comprising a packing resting against an internal shoulder in such extension, a nut bearing against said packing, and wings having shanks



1,670,112.

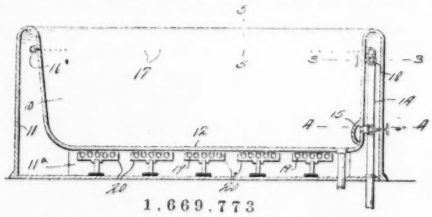


1,670,219.

threaded in said nut, each shank being of a length sufficient to project through the nut and engage the pipe, substantially as set forth.

* * *

1,669,773. Electrically-Heated Bathtub. Katharine H. Ober, Baltimore, Md. An electrically heated bathtub comprising an exterior supporting portion adapted to rest on the floor and extending upwardly therefrom and thence inwardly and downwardly to form the tub proper with a space between the bottom and sides of the interior portion

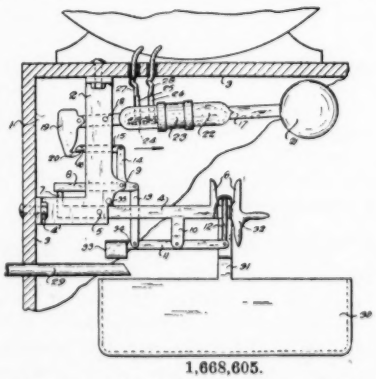


1,669,773

of the tub and the floor and around the sides of the tub and said exterior supporting portion, a series of electric heaters in the space at the bottom of the tub and extending substantially from one end to the other thereof, and means for energizing one or any number of the heaters of said series for heating the air in the space at the bottom and around the sides of said tub.

Heating Department

1,668,605. Trip Mechanism for Oil Burners. Charles Augustus Reif, Buffalo, N. Y. In an electrical switch



1,668,605.

mechanism comprising in combination with a tube constructed of insulated material and having a globule of mercury therein adapted to constitute an electrical con-

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Simplify radiator installations with the new Tu-bu-lur Bracket. One style — three sizes — to fit all tube type radiators. Allows complete adjustments in any direction or plane. Permits hanging radiator in exact plumb. Gives a more perfect job at a lower cost.

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Raising RED RING to hook on wall plate upstairs, lights heater in basement. Dropping RED RING shuts off gas. POSITIVE ACTION.

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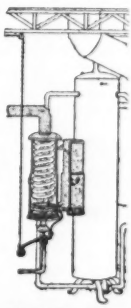
Every housewife who sees a JOHNSON Red Ring Gas LIGHTER will want one—display them in your windows and in your store. They sell themselves.



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Which Is Why You Should Sell

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3 Because, built by a financially strong company with 38-years' experience in manufacturing precision-built machines and forcefully advertised, buyers' investment protection is assured.

4 Because it is listed as standard by Underwriters Laboratories and approved by Board of Standards and Appeals of New York.

5 Because it is quiet—automatic—durable—easily understood—economical, completely burning cheaper grades of oil efficiently.

6 Because all bearings are submerged in lubricating oil, and require a minimum of attention.

7 Because there are twelve different sizes and combinations—all parts standard and interchangeable—providing individual treatment to fit the needs of any heating plant.

8 Because scientific distribution of flame over grate area of boiler and numerous exclusive, patented features assure economy and dependability unobtainable elsewhere.

9 Because it is endorsed and specified by leading architects and heating engineers regularly for installation in the finest buildings in America, from bungalow to skyscraper.

10 Because it is sold only by dealers equipped to render prompt day and night service—a service demanded by Hardinge policy, seldom found necessary, but nevertheless a reassurance to the layman.

We shall be glad to discuss the Hardinge Franchise with you. Call on or write

HARDINGE BROS., Inc.

Manufacturers of Precision-Built Machines for 38 Years

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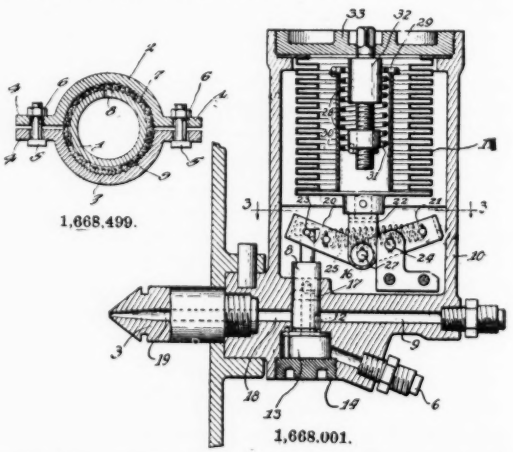
HARDINGE FUEL OIL HEAT

nection between two terminal points in the tube when said tube is held at a predetermined inclination, of a swingable arm upon which the tube is mounted, a bracket member adapted to support said swingable arm, a swingable lever pivotally mounted upon the bracket member, a second swingable lever pivotally mounted upon the first swingable lever, a fluid receiving receptacle supported by the second swingable lever, a third swingable lever pivotally mounted upon the bracket member and adapted to slidably engage the first swingable lever, a link connecting the second and third mentioned swingable levers, a trip mechanism mounted upon the third mentioned lever and adapted to engage the swingable arm for retaining it in a predetermined inclination, means for introducing fluid into the fluid receiving receptacle and means whereby the introduction of such fluid increases the weight of the fluid receiving receptacle to swing the swingable levers downwardly to disengage the trip mechanism from the swingable arm to permit a change of inclination thereof with the resultant movement of the mercury globule away from the terminal points to break the electrical circuit.

* * *

1,668,001. Valve for Controlling Oil Burners. John E. Bolling, Chicago, Ill., assignor to Drying Systems, Inc., Chicago, Ill. In combination in a fluid fuel burner a fuel nozzle, a fuel conduit leading to said nozzle, a drain opening into said conduit, means for supplying fuel under pressure to said conduit, and a valve controlling the admission of fuel to said nozzle, said valve being adapted to be opened and to simultaneously close said drain by a predetermined pressure in said conduit.



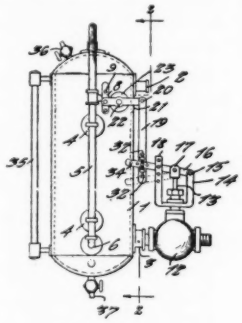
1,668,499. 1,668,001.

1,668,499. Pipe Clamp. George Geiser and Peter Latsch, Helena, Mont. A pipe clamp including opposed semicylindrical sections each having packing engaging surfaces knurled to provide a plurality of closely disposed penetrating points, means for detachably connecting the sections in clamping relation with respect to a pipe, and a packing member adapted to be arranged between the pipe and the sections and to be uniformly pressed over its entire surface and into covering position with respect to the pipe by said penetrating points.

* * *

1,668,667. Steam Trap. Bradford B. Beach, Seattle, Wash. A steam trap comprising a tank having an inlet, an outlet, a valve controlling the outlet, a lever for operating the valve, a pipe communicating with the interior of the tank at the lower end and opening into the tank at the upper end, said pipe being mounted for expansion and contraction, a pivoted lever operated by the pipe, a link connected to said last mentioned lever, and

an adjustable connection between said link and the valve controlling lever, said connection comprising bolts mounted for adjustment longitudinally of the link and means carried by the valve controlling lever to be operated by said bolts.



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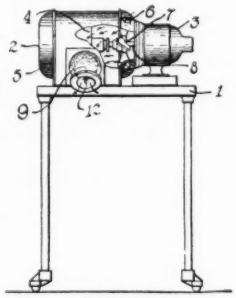
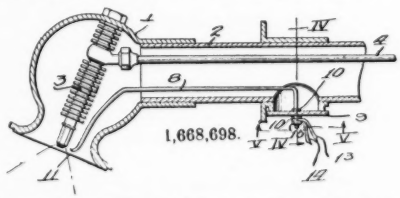


1,668,697.

1,668,697. Oil Burner. Charles L. Rayfield, Chicago, Ill., assignor to Rayfield Manufacturing Company. In combination in an oil burner a housing having openings in its wall, oil pumping mechanism in said housing, an air compressor in said housing, means for sucking air into said housing through said openings and for circulating it around said compressor to cause it to be preheated by the heat given off by said compressor, a nozzle connected to said housing into which oil from said mechanism is discharged and into which said preheated air is discharged, and an oil line connected to said pumping mechanism and arranged so as to receive heat from the heated air delivered to said nozzle.

* * *

1,668,698. Electrical Ignition System for Oil Burners. Charles L. Rayfield, Chicago, Ill., assignor to Rayfield Manufacturing Company, Chicago, Ill. In combination in an oil burner a tubular member comprising an air tube and having connected to it an angularly formed end pro-



1,668,698.

vided with a discharge orifice, a fuel nozzle positioned in said end and a plurality of spark electrodes each comprising an angularly bent member including a leg disposed within the tubular member and connected thereto and a leg disposed in said end of the tube alongside of said nozzle and means for adjusting each of said electrodes in such a manner as to enable the end of the leg of each of them adjacent the nozzle to be at all times out of the path of the jet leaving the nozzle but sufficiently close thereto that the spark emanating from said electrodes will be blown by the air in said tube into said jet.

* * *

1,668,896. Temperature Regulator. Jean V. Giesler, Knoxville, Tenn., assignor, by mesne assignments, to The Fulton Sylphon Company, Knoxville, Tenn. In a device of the character described, the combination of a rigid support, a spider mounted thereon, a thermosensitive expansible and collapsible vessel having a rigid end wall secured to said spider and a movable end wall within said spider, a pipe adjustably secured at one end to said rigid support, a yoke to which said pipe is adjustably secured at the other end, a frame, means securing said yoke and

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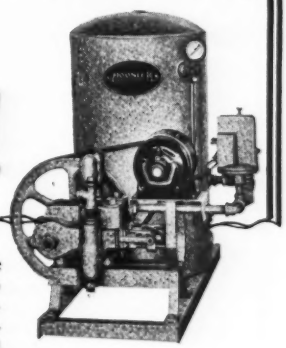

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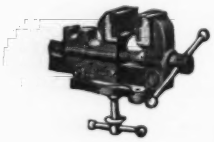

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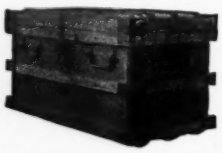

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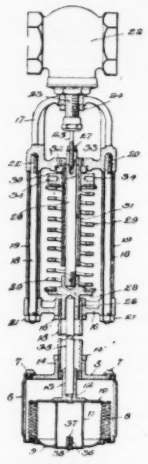
frame together in spaced relation, an exteriorly threaded adjusting tube secured to said frame and extending toward said yoke, a nut on said tube, a spring-plate having a part telescoping with said pipe, a spring reacting between said nut and spring-plate, a rod extending through said pipe and connecting said movable end wall and said spring-plate, a plunger extending through said adjusting tube and connected to said spring-plate, a valve.



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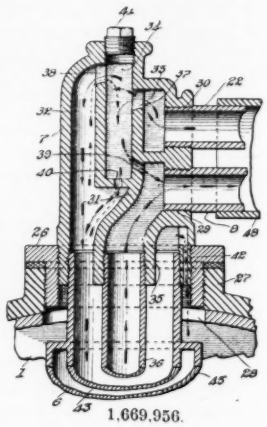
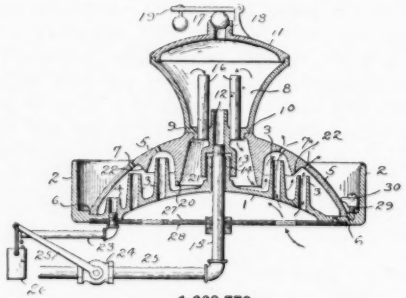


1,669,956.

1,669,956. Fuel-Burning System. Leport R. Van Sant, Peoria, Ill. The combination in a liquid fuel burning system including a fuel containing reservoir, a burner, a pump and fuel lines between the reservoir and burner, of a controlling means forming a connection between the fuel lines and the reservoir and having communication with an air supply, a fuel supply pipe suspended within the reservoir and communicating with the controlling means, a return fuel pipe also suspended within said reservoir and communicating with said controlling means, said controlling means arranged to drain fuel therefrom on the cessation of the pump and to replace the drained fuel with air from the air supply, and adapted to receive fuel on the operation of the pump to displace the air and create a siphonic-action in the system, means for applying a heating medium to the fuel lines to raise the temperature of the liquid fuel on its passage from reservoir to pump.

* * *

1,668,773. Oil Burner. Louis La Branch, Dayton, Ohio. In a hydro-carbon fuel burner, two concavo-convex plates of different curvature superposed one upon the



1,668,773.

other to form an intermediate mixing chamber, a plurality of spaced vent perforations in the upper plate, a plurality of air inlet ducts extending through the lower plate and into proximity to the perforations of the upper plate, a vaporizing chamber to which liquid fuel is supplied, a vapor conduit leading therefrom and discharging into the mixing chamber.

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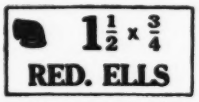

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TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., July 2, 1928—Sealed Proposals will be opened in this office at 3 p. m., August 2, 1928, for furnishing all labor and material required for installing one electric passenger elevator, etc., in the U. S. court house and post office at Little Rock, Ark. Drawings and specifications may be obtained from the custodian at the U. S. court house and post office at Little Rock, Ark., or at this office in the discretion of the Supervising Architect. JAS. A. WETMORE, Acting Supervising Architect.

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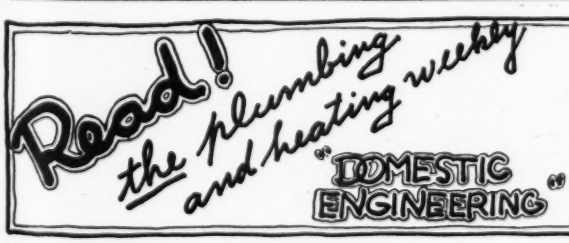

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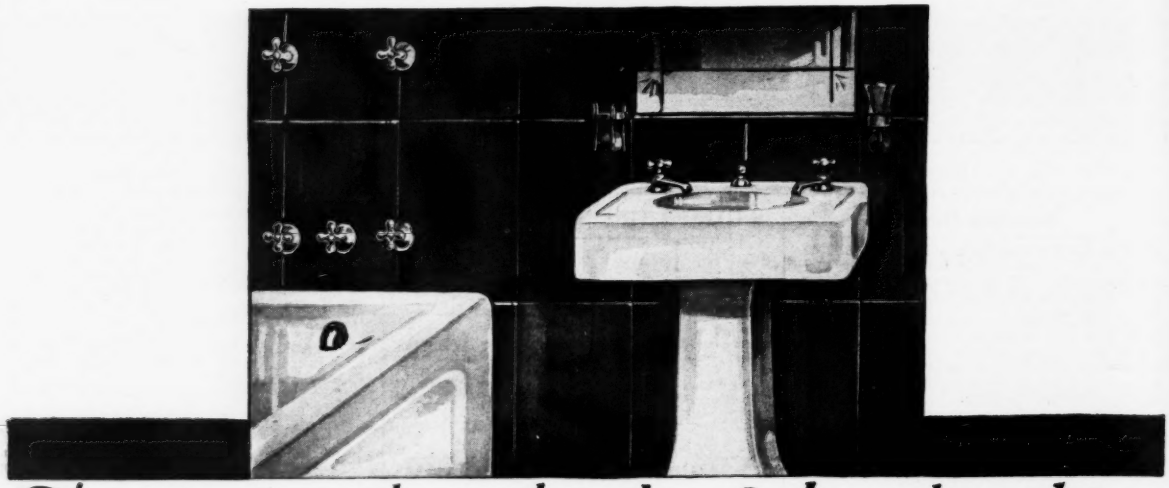

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